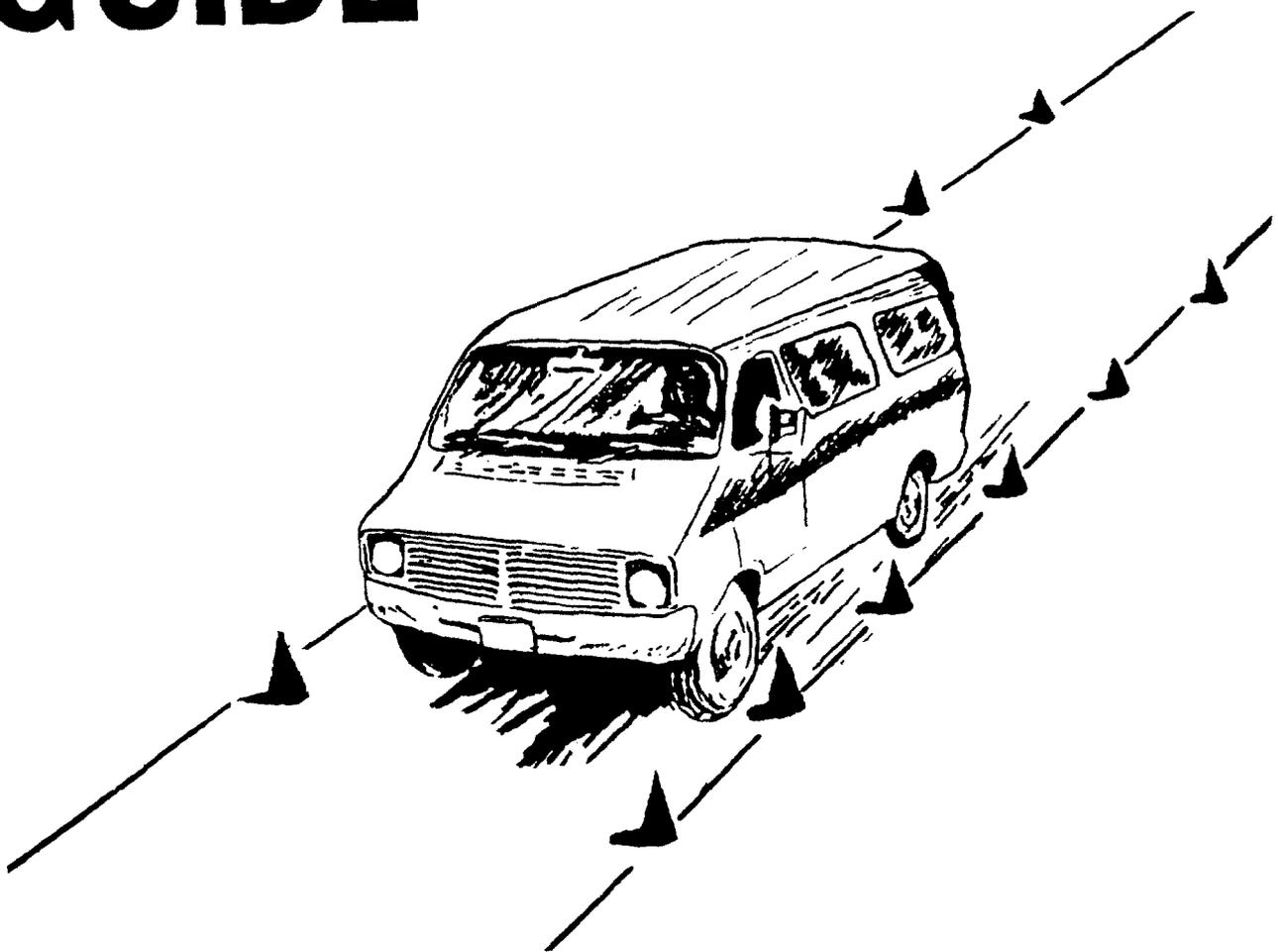




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# **PARATRANSIT ROADEO CURRICULUM GUIDE**



**TRANSPORTATION SAFETY  
TRAINING CENTER  
VIRGINIA COMMONWEALTH  
UNIVERSITY**

## Paratransit Roadeo Curriculum Guide

These materials were originally prepared by the Transportation Safety Training Center at Virginia Commonwealth University, Richmond, Virginia and subsequently reprinted by the U.S. Department of Transportation. Funds for the original production of the report were provided under contract with the Virginia Department of Highways and Transportation. However, the guidelines and procedures recommended herein do not necessarily reflect the policies or requirements of the State of Virginia and its agencies, of any other state, or of the U.S. Government. Furthermore, neither the State of Virginia nor any specific agency, nor the United States Government assume any responsibility or liability for any injury and/or property loss that may result from the application of these guidelines or procedures.

The Transportation Safety Training Center also prepared a variety of materials on driver training, and this guide assumes that participating drivers should have completed part of that package (see p.3), as well as reviewing the State Division of Motor Vehicles' Driver's Manual. Other areas using this material as a starting point for their own roadeos should make appropriate modifications in the procedures and test materials based on their driver training packages in use, as well as the appropriate state motor vehicle and traffic laws.

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## FOREWORD

As a result of a contract with the Virginia Department of Highways and Transportation the Transportation Safety Training Center at Virginia Commonwealth University, in cooperation with two special transportation providers planned and implemented two paratransit roadeos in 1981. The roadeos were held in Charlottesville, Virginia, August, 1981 and in Martinsville, Virginia, October, 1981.

Both roadeos involved 15 operators matching their driving knowledge and skills against each other in competition. The competition was divided into two phases. The first phase involved a written examination addressing driving techniques with an emphasis on safety. The second phase was a practical exercise requiring each participant to maneuver their vehicle through each of five exercises. The emphasis of the practical exercise was on precision driving. All competition was preceded by a classroom session covering the basics of defensive driving.

The success of these roadeos has led to the development of this Paratransit Roadeo Curriculum Guide. The material contained in this publication is based on the model developed for the two preliminary roadeos. The "guide" is designed such that a roadeo can be planned and implemented by the staff of any paratransit organization. However, it is recommended that during the planning stage the "guide" be read completely so as to facilitate any changes that may be necessary to meet individual organization needs.

The Transportation Safety Training Center wishes to express its gratitude to Jefferson Area United Transportation and Piedmont Seniors of Virginia for their cooperation in planning and implementing the two preliminary roadeos.

Robert J. Breitenbach  
Principal Author

## ROADEO ORGANIZER'S GUIDE

This guide is designed to assist the roadeo organizer with setting up and implementing a successful paratransit operator roadeo. It addresses most "How to" questions that may arise within the organizing agency; and provides some suggestions concerning implementation. Following this section on organization, there is a section which provides suggested content for the classroom session. The content section is designed to be read to the participants in class. It also suggests topics to be discussed, and recommends handouts to supplement the lecture. The contents section should be read throughly by the instructor prior to implementation.

Success of the roadeo is a major concern of the organizing agency, therefore it is appropriate at this point to define what a successful roadeo should achieve. This definition of success can be written in the form of objectives.

At a minimum there should be three objectives for the paratransit roadeo.

- To strengthen the relationship between the participant and the sponsoring organization,
- To reinforce in the participant the importance of and responsibilities associated with their position in the paratransit organization,
- To create an awareness within the participants of their driving skills and limitations as well as the potential and limitations of their vehicles.

The first two of these objectives deal with motivation. The roadeo should provide the participants with positive job related motivaiton.

The third objective deals with skill awareness. Even though the primary intent of the roadeo is not to provide a substitute for defensive driver training, it should produce the effect of each participant being more in tune with their individual driving ability and the capability of their vehicle.

Hopefully the sponsoring organizations has other objectives for which to strive. These should be written down, and the most appropriate along with the third objective just mentioned, communicated to the participants at the beginning of the classroom session. By communicating these objectives to the participants they are able to develop expectations concerning the activity. This combination of expectations -- those shared by the participants and the sponsoring organization -- will add greatly to the potential success of the paratransit operator roadeo.

Now that the roadeo activities are clearly in place, operational planning can begin. To assist the sponsoring organization in the operational planning of the roadeo key points have been outlined along with suggestions for implementation.

### PARTICIPANTS

Participants should be full-time, part-time or relief drivers from within the participating paratransit organization(s). The number of participants may vary depending on the size of the organization. However, for best results it is recommended that not more than 15-20 participants be involved in a one-day activity.

Prior to the roadeo activity each participant should have completed the Transportation Safety Training Center's Transit Operator Training Program (Package B -- Self Instructional Program). They should also have reviewed the Division of Motor Vehicles Driver's Manual. Information from these two sources will be discussed in the classroom session, and will appear on the written examination. Participants should be informed of this far enough in advance of the roadeo so they have time to prepare.

### VEHICLES

The vehicles chosen should be the type (van, station wagon, passenger car) predominately used to provide transportation in the paratransit organization. If the organization normally uses vans, then vans should be used in the competition. All vehicles used in the competition should be of the same type.

The number of vehicles involved in the competition may vary depending on the number of participants, however it is recommended that five vehicles be used to correspond with the number of exercises. Each participant should then be assigned to a particular vehicle, and remain with that vehicle throughout the competition. (If, for example, there are 15 participants and five vehicles, then three people should be assigned to each of the five vehicles).

Prior to the competition each vehicle should be inspected and an inspection checklist completed and validated. During the inspection and prior to competition all loose debris (paper, cans, bottles, etc.) should be removed from the inside of each vehicle. Debris in the vehicle may cause distraction or even injury during the competition. The inspection procedure will be addressed again later.

### INSURANCE

Prior to competition the sponsoring organization should review their insurance policy or contact their insurance carrier to insure that their coverage includes activities such as the roadeo.

A record should also be maintained to document the roadeo and participants. Since insurance carriers usually indorse activities of this nature, documentation may aid at a later date in negotiating a premium reduction.

### SITE SELECTION

- Classroom: Select a room large enough to accomodate all participants and quests. Since a written exam is given during the classroom session, tables or desks should be available. The classroom site, for convenience, should, be located near the exercise site.
- Exercise Site: The exercise site should be approximately 400 ft x 400 ft in size. The area should be flat, free of dips or

bumps, and with sufficient grade to allow water run-off. The driving and surrounding area should be free of curbing and obstacles. Some possible exercise sites may include: large parking lots (high schools, community colleges, industries, etc.), unused airport runways and taxiways, multi-vehicle driving ranges and motor speedways.

### EXERCISE SITE PREPARATION

Prior to the physical layout of the range, it is recommended that the site be evaluated for safety hazards. All hazards should be removed. If removing the hazard is impossible then adequate warning devices should be placed near the hazard and, where necessary, the hazard should be surrounded with hay bales.

If the possibility exists that on-lookers or other vehicles will enter the driving area, special precautions must be taken to restrict their movement and keep them away from the exercise range.

### EQUIPMENT AND MATERIALS

The following is a suggested list of equipment and materials needed for the roadeo.

- Exercise vehicles equipped with seat belts and shoulder harnesses. (see vehicle section for number)
- Van or truck to transport equipment
- 4 stop watches
- Clip boards (one for each judge)
- Whistles (one for each judge)
- 100 foot measuring tape
- Chalk
- Traffic cones (approximately 150)
- Spray paint
- Two-way radio (walkie-talkie or C.B.)

- Bull horn
- Cinder blocks (curb simulators for parallel parking)
- Five-foot poles with caution flags for offset alley
- Hay bales (if necessary)
- Warning signs or rope barriers to restrict on-lookers
- Blackboard or flipchart for classroom session

Much of the needed equipment and materials can be borrowed. If any item is used on loan, care should be taken to insure nothing is damaged and that the items are returned in a timely fashion.

The following are some suggestions as to where particular items may be located.

- Traffic cones - State, County, City Highway Departments; State County, City Police Departments
- Stop Watches - State, County, City Police Departments; High Schools; Jr. High Schools
- Bull Horn - State, County, City Police Departments

The above agencies may be able to assist the sponsoring organization in securing some of the other items needed, or provide other sources through which these needs can be met.

### EXERCISE LAYOUT

Appendix A includes a scale drawing of each exercise block along with dimensions. Also included in Appendix A are sample layouts of the exercise range. The actual layout used may differ from the samples, depending on the size and shape of the available space.

It is recommended that a scale diagram be made of the area prior to rodeo implementation in order to accurately position each exercise and make maximum use of available space. This diagram should be made well in advance of the actual exercise layout so as to allow sufficient time to collect any additional material (rope, barriers, etc.). The physical layout of each exercise block should proceed as follows:

- make preliminary measurement of the exercise block,
- maintain fifty (50) feet between each exercise block,
- return to each exercise block and mark the respective position of the cones with chalk (temporarily),
- position cones on the chalk marks and drive through the course (the test vehicle should be the same size as the vehicles used in the competition),
- make any necessary adjustments,
- mark permanent cone position with spray paint.

If possible, the physical layout of the exercise blocks should be done a day in advance of the actual competition. By doing this there will remain adequate time to correct any problems that may arise during the layout process. The cones should then be removed -- for security -- and then replaced immediately prior to the competition. Replacing the cones prior to competition is a relatively simple task since the respective cone positions have been permanently marked with spray paint.

#### TIME SCHEDULE

- Exercise Layout and Adjustment -- 2½ hours (2 people)
- Classroom Session -- 1½ hours
- Written Examination -- ½ hour
- Driving Exercise -- 3½ hour (15 contestants)
- Tally Scores -- 1 hour (15 contestants)

With the exception of the written examination these times are approximate and may vary depending on staff size and number of contestants.

#### SELECTION OF JUDGES

If possible judges should be selected from outside the sponsoring organization. By choosing judges from outside the organization the risk of subjective judging based on personalities is minimized. If judges are chosen from within the organization care should be taken to choose those individuals who will be most objective in their judging.

The number of judges may vary. At a minimum there must be five (5) judges, one for each exercise. Each of these judges should be stationed at their respective exercise to evaluate and record the contestant's time and performance.

It is recommended that nine (9) judges be used, two for each exercise except parallel parking. One judge should be stationed at the exercise block to evaluate and record the contestant performance, the second judge should ride in the vehicle and record time.

### EVALUATION CRITERIA

#### 1. Driving Exercise:

Each contestant will make two runs for scores through each exercise. As soon as the first run is completed the contestant returns to the start location for the second run. This procedure continues until each participant in the team has made two runs through the exercise, at which time this exercise is completed for that team. When a team completes an exercise the judge should direct that team to progress to the next exercise. The judge should not direct the team to progress to the next exercise until that next exercise is clear.

The judge(s) will evaluate their runs and record their performance on an evaluation form (see Appendix B). The judges should be provided with as many evaluation forms as there are contestants and the form should correspond with the judges respective exercise block.

Each of the five exercises includes a penalty for striking a cone. The judges should be coached to observe very carefully for cone penalties, and that a cone should be counted as struck regardless of whether it was knocked over or just barely touched by the vehicle. The judges should also be responsible for replacing cones that are knock out of place. This must be done as the exercise is being run, in the parallel parking, off-set alley and the serpentine exercise. Cones, must be replaced before the second run for each exercise.

For each exercise block the specific evaluation criteria and special instruction are as follows:

a) Double Lane Change

- Cone penalty
- Time penalty

The Double Lane Change requires the contestant to position the vehicle at the start location (the start location should be fixed so the exercise can be driven in 7 seconds with rapid, initial acceleration). The contestant shall not begin the run until directed to do so by the judge. As soon as the run begins the clock starts and does not stop until the vehicle exits the last set of cones and comes to a complete stop. At this time the judge records on the evaluation form the time and cones struck.

b) Reaction Course

- Cone penalty
- Time penalty
- Response penalty

The reaction course requires the participant to position the vehicle at the start location (the start location should be fixed so the exercise can be driven in 10 seconds with rapid, initial acceleration). The contestant shall not begin the run until directed to do so by the judge. As soon as the run begins the clock starts and does not stop until the vehicle exits the last set of cones and comes to a complete stop. In the reaction course when the front bumper of the contestants vehicle is parallel with the last two cones of the first set (see exercise diagram) the judge directs the vehicle either left, right or straight. This command can be communicated through radios or signal flags. At the conclusion of the run the judge records on the evaluation form the time, cones struck and whether a correct or incorrect response was made to the command. A correct response is when the vehicle is maneuvered through the lane that corresponds with the command.

c) Serpentine

- Cone penalty
- Time penalty
- Average distance from cones
- Horn penalty

The serpentine requires the participants to position the vehicle at the start location (the start position should be fixed so the exercise can be driven in 30 seconds forward time plus reverse time with rapid initial acceleration). The contestants shall not begin the run until directed to do so by the judge. As soon as the run begins the clock starts and does not stop until the vehicle clears the last cone and comes to a complete stop. At this time the judge records on the evaluation form the time and cones struck by the contestant in the forward motion. During the forward run the judge also takes note (subjectively) of the average distance the vehicle was maneuvered from the cones.

After the forward motion has been evaluated the judge should begin the reverse motion run. As soon as the reverse motion run begins the clock starts and does not stop until the vehicle clears the last cone (nearest the start position) and comes to a complete stop. The judge then records on the evaluation form the time and cones struck in the reverse motion. The judge should also record a deduction, if any, for average distance from the cones (forward and reverse combined) and whether or not the horn was sounded at the beginning of the reverse motion.

d) Parallel Parking

- Cone penalty
- Gear change penalty
- Curb distance penalty
- Horn penalty

The parallel parking exercise requires the participant to position the vehicle at the start location, and when given the go-ahead by the judge, park the vehicle in two separate parallel parking spaces. The contestant shall not begin the run until directed to do so by the judge.

As soon as the contestant is in position to begin maneuvering the vehicle into parking space #1 the judge should begin counting the number of gear changes necessary to complete the first parking maneuver. Each parking maneuver should require only two (2) gear changes, (one gear change into reverse to back into the parking space and one gear change into forward to straighten the vehicle within the parking space). When the contestant completes parallel parking in space #1 the judge should record on the evaluation form the number of gear changes and the number of cones struck for space #1, also whether or not the horn was sounded at the beginning of any reverse motion. In determining the number of cones struck the judge should consider one cone being struck if the vehicle strikes more than one cone at the same time. For example, as the contestants vehicle is being straightened in the parking space it may strike the three or more cones marking the boundary of the space. Striking these cones should be counted as one cone struck rather than three or more separate strikes.

At the conclusion of the parking maneuver for space #1 the judge should observe the distance between the vehicle and curb. After the contestant has been evaluated as described above on space #2, the judge should record the average distance from curb on the evaluation form, along with the other space #2 evaluation results. Remember to record whether or not the horn was sounded at the beginning of any reverse motion.

e) Off-Set Alley

- Cone penalty
- Time penalty
- Horn penalty

The off-set alley exercise requires the contestant to position the vehicle at the start location, and when given the go-ahead by the judge begin the forward maneuver through the exercise. The contestant should stop as soon as the rear of the vehicle clears the last set of cones. When given the go-ahead by the judge the contestant should then begin the reverse maneuver through the exercise. The contestant should stop as soon as the front of the vehicle clears the last set of cones. The forward and reverse maneuvers constitutes one run through the exercise.

The start location for the off-set alley should be fixed so the combined forward and reverse maneuvers can be performed in 25 seconds. The contestant shall not begin the run until directed to do so by the judge. As soon as the run begins the clock starts and does not stop until the vehicle clears the last set of cones and comes to a complete stop. At this time the judge records on the evaluation form the time and number of cones struck in the forward motion.

The judge should begin the reverse motion after the forward motion has been evaluated. As soon as the reverse motion begins the clock starts and does not stop until the vehicle clears the last set of cones (nearest the start location) and comes to a complete stop. The judge then records on the evaluation form the time and cones struck during the reverse motion. The judge should also record whether or not the horn was sounded at the beginning of the reverse motion.

## 2. Written Examination:

The written examination consists of 25 questions including: true-false, multiple choice, and fill-in-the-blank (see Appendix B). The written exam should be reproduced so each participant can receive a copy. The exam should be given at the conclusion of the classroom session and should be timed (30 minutes). At the conclusion of the 30 minutes the exam papers should be picked up immediately, making sure no one has more time than others.

The exam should be graded by the judges. An answer key is provided (see Appendix B). It includes question number, answer and source (where the question came from). Each question has one correct answer, however, when correcting the fill-in questions credit may be given to contestants using their own words. For example: if an answer should be "environment" and a participant answered with "surroundings" you could count the participants answer correct. A word of caution if you give credit for contestants own words, be consistent; give an equal amount of consideration to each contestant. After the written exam is graded the judges should record the number of correct answers at the top of each contestants exam paper. This score will be used in calculating the final rodeo score.

### 3. Evaluation Summary:

An Operator's Summary Evaluation sheet (see Appendix C) has been provided to assist in calculating each contestant's final roadeo score.

This sheet should be completed for each contestant at the conclusion of the driving exercise. It provides the calculations necessary to combine the driving exercise scores (Run #1 and Run #2) with the written exam score to produce a final roadeo score. This final roadeo score will then provide the basis for determining the winning contestant and/or team.

### PROCEDURES

The following are general procedures for:

- Vehicle Safety Inspection
- Selecting Teams
- Assigning Teams to Exercises
- Progressing from Exercise to Exercise

#### 1. Vehicle Safety Inspection:

To insure safe competition each vehicle involved in the roadeo should be inspected immediately prior to the competition. A Vehicle Inspection Checksheet has been provided to document this inspection (see Appendix C). No vehicles should be allowed in the competition without a Vehicle Inspection Checksheet being completed for it.

The inspection and completion of the checksheet should be performed by an individual who is responsible for the maintenance and/or upkeep of the vehicle. The checksheet should then be turned over to an official of the organization sponsoring the roadeo. If any defects or problems are recorded on the inspection checksheet, the official should disapprove the use of the vehicle in competition, or recommend appropriate corrective measures. The Vehicle Inspection Checksheet should be retained by the sponsoring organization for documentation.

If, after the competition begins, any problems with the vehicle should arise, the judges should be instructed to stop the vehicle and prohibit its use for the remainder of the competition or until the problem is corrected.

## 2. Selecting Teams:

- Teams should not consist of more than 3-4 people per team,
- For best results it is recommended that not more than 5 teams be involved,
- If all participants are from the same organization team members should be assigned randomly (draw names out of a hat),
- If the participants represent a number of organizations then each organization should be represented by a team of 3-4 people.

## 3. Assigning Teams to Exercises:

- Each exercise should be numbered from 1-5 in order of their layout,
- Each team should be numbered randomly from 1-5 (Draw numbers out of a hat),
- Each team will begin at the exercise that corresponds to their assigned number.

## 4. Progressing from Exercise to Exercise:

For the safety of the participants and observers the judges should be responsible for authorizing a team to move to the next closest exercise. A judge should not authorize a move until the next exercise is clear of participants and is safe.

When all the team members at a particular exercise have completed their set of runs and the next exercise is clear and safe, the judge

should instruct that team to progress to the next exercise. If the exercises are numbered sequentially as they are layed out, then after the first set of runs team #1 will be moving to exercise #2, team #2 will be moving to exercise #3 and so on, with team #5 moving to exercise #1. These progressive moves should be continued until each team has completed each exercise.

If a back-up arises at a particular exercise a judge may authorize a team to skip to the closest open exercise. However, this should not be done unless absolutely necessary or without the approval of the other judges. If, with approval a judge authorizes a team to skip an exercise then that team must run the skipped exercise(s) last.

#### WRAP-UP

At the conclusion of the roadeo the sponsoring organization should provide awards to the top scoring participants and/or team. Care should be taken not to alienate those not receiving awards, but to encourage them to participate and try harder if and when another roadeo is held. Documentation of the results of the roadeo along with a list of participants should be provided to the participating organizations.

The sponsoring organization should also evaluate the success of the roadeo in terms of the objective set out in the beginning. It should be determined if the objectives were met, and if not what could be done differently in any future roadeo to more closely meet the objectives.

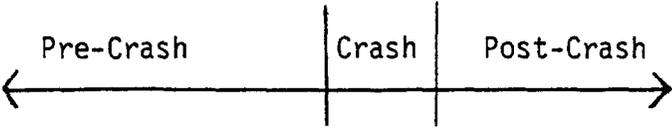
Another form of evaluation could involve observing the participants for a period of time in their work environment to document an improvement (if any) in attitude or driving skill. An evaluation of this type will provide a more accurate assessment of the benefits resulting from the roadeo activity. The results of the evaluation or assessment should be maintained for future planning.

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>Good morning and welcome to 's Annual Paratransit Operator Roadeo. I'm and this is my partner We will be coordinating today's activities.</p> <p>This paratransit operator roadeo, designed by the Transportation Safety Training Center and the Virginia Department of Highways and Transportation office of Public Transportation, will allow each participant to become more familiar with particular operating techniques, (emphasis on precision driving), reinforce each participant's knowledge of the rules of the road, and various other factor's associated with paratransit operation. The Roadeo <u>is not</u> a defensive driving course, however the classroom session will address some basic defensive driving concepts, and various of the exercises will require defensive driving skills.</p>	<p><i>Introduce yourself to the group.</i></p> <p><i>Explain the purpose of the Roadeo.</i></p>
	<p>The roadeo is a competitive event. You will be competing among yourselves for points (scoring will be addressed later) with the highest scoring operator and or team being declared the winner. We will begin with a classroom session which</p>	<p><i>Explain the days activities.</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>will last approximately one hour and a half. In the classroom session we will talk about how and why accidents occur and what can be done to decrease the likelihood of accidents. Also in the classroom session we will be describing the driving course (exercise), how you will be scored and the general rules or format for running the course.</p> <p>After we finish the classroom session we will be ready to take a written exam. The exam will take 30 minutes and will include questions from the classroom session, the State Driver's Manual, and the Paratransit Operator Training Curriculum.</p> <p>At the conclusion of the exam we will all meet on the driving course to begin the driving competition.</p>	<p><i>Participants should have received the State Operator's Manual and the Training Curriculum.</i></p>
	<p>We are going to begin our classroom session by discussing motor vehicle accidents.</p> <p><u>A motor vehicle accident is an unintentional event causing death, injury, or property damage involving a motor vehicle</u></p>	<p><i>Ask participants to define motor vehicle accidents</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p><u>in transport.</u></p> <p>The important words in this definition are "unintentional" and "in transport"</p> <p>Are all motor vehicle <u>crashes</u> unintentional? The answer is <u>no</u>. Not all motor vehicle crashes are unintentional.</p> <p>Many one-vehicle crashes and some multi-vehicle crashes occur because one or more of the drivers intend for it to occur. These more often than not are suicide attempts, and are not truly accidents because they were not unintentional. In this class we are going to concentrate on <u>accidents</u>; that is, those crashes that are unintentional.</p> <p>The other key word or words in the definition is "in transport". <u>In transport</u> is defined as:</p> <ul style="list-style-type: none"> <li>● in motion, or</li> <li>● in readiness for motion, or</li> <li>● on a roadway, but <u>not</u> parked in a designated parking area.</li> </ul> <p>Now that we have precisely defined a</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>motor vehicle accident, lets examine the time frame within which an accident occurs. Understanding this time frame will help you visualize what <u>you</u> can do to prevent an accident from occurring.</p> <p>There are three time phases of an accident:</p> <ul style="list-style-type: none"> <li>● Pre-Crash</li> <li>● Crash</li> <li>● Post-Crash</li> </ul> <p>The <u>pre-crash</u> time phase is that period during which the circumstances causing the accident began. This period could be hours, months or even years before the crash and ends when the crash actually occurs.</p> <p>The <u>crash</u> time phase begins with the first harmful event (collision) and continues until the vehicle(s) in the crash have stopped moving or stabilized. This period will generally be short -- often little more than one second.</p> <p>The <u>post-crash</u> time phase is that period from when the vehicle(s) have</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>stabilized to when the scene of the accident has been brought back to normal. This time period varies with the complexity and or seriousness of the accident.</p> <p>A useful way of demonstrating the three time phases of a crash is through the use of a time line. The time line should be divided into three segments representing the three phases of a crash.</p> <div style="text-align: center;">  </div> <p>Most of which causes accidents takes place in the Pre-Crash phase.</p> <p>To assist us in better understanding what takes place in these three phases of a crash and therefore to better understand why accidents occur, we need to look at those things that make up our transportation system.</p> <p>You may think that this is a difficult task, but in fact it is very simple.</p> <p>The motor vehicle transportation system can be divided into three elements.</p>	<p><i>Draw on blackboard or flipchart and emphasize the Pre-Crash segment.</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<ul style="list-style-type: none"> <li>● Human</li> <li>● Vehicle</li> <li>● Environment</li> </ul> <p>The human element consists of all drivers, passenger, and pedestains involved in the crash. This component includes the individual's behavior ranging from mental and physical conditions to driving or walking mannerisms.</p> <p>The vehicle element consists of all vehicles involved in the traffic crash. The vehicle component includes all parts and equipment contained on the vehicle. Any vehicle defect which causes a collision would be categorized in the vehicle component.</p> <p>The environmental element consist of all external conditions not contained in the human and vehicle elements. This component includes factors such as roadway design and conditions, weather, and lighting conditions.</p>	<p><i>Write on black-board or flip-chart.</i></p>
	<p>Now that we have briefly examined the three phases of a crash and the three elements of the transportation system we</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>ought to be able to make a list of some things that might cause an accident.</p> <p>The following is an <u>example</u> of what the participants list <u>might</u> look like:</p> <p>Environment 1. Slick Highway  Human 2. Children in car (distraction)  Vehicle 3. Brake Failure  Human 4. Sudden Stop  Human 5. Poor Driving Ability  Human 6. Driving Under the Influence of alcohol  Environment 7. Pot Holes in Roadway  Human 8. Speeding  Environment 9. View Obstructed  Human 10. Failed to Stop</p> <p>I am going to read each item on our list, tell me which element of the Transportation system it represents. (Human, Vehicle, or Environment).</p> <p>By adding up each we can tell which element is represented most.</p> <p>From the above example:</p> <p>6 - Human    3 - Environment    1 - Vehicle</p>	<p>Ask participants to list some causes of accidents. Write the list on the blackboard or flipchart.</p> <p>Ask participants to classify the items on the list according to the 3 elements of the transportation system (See example) Add up total of each element.</p>

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	<p>The breakdown of our list should be very similar to the percentage breakdown of the elements of the transportation system in relationship to accidents nationally.</p> <p>Of all accidents nationally the human element contributed to 85%, the environmental element contributed to 18% and the vehicle element contributed to 6%. These percentages add up to more than 100% because some of the accidents occurred as a result of a combination of 2 or more of the elements.</p> <p>If we examine our list and/or the national percentages its fairly obvious to see that if we are ever involved in an accident it is most likely to be as a result of human failure. This human failure usually occurs in the pre-crash time phase of the accident sequence.</p> <p>To state this in a more positive since; if we are going to avoid being involved in an accident we must be fully aware of and take the necessary corrective action to eliminate problems associated with environmental deficiencies,</p>	

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	<p>vehicular deficiencies, and most importantly human deficiencies (our own as well as other drivers).</p>	
	<p>We discussed earlier the definition of an accident. Now lets breakdown accidents into two categories.</p> <ul style="list-style-type: none"> <li>● Preventable Accidents and,</li> <li>● Non-Preventable Accidents</li> </ul> <p>A <u>preventable accident</u> is one in which you failed to do everyting you reasonably could have done to prevent it.</p> <p>A <u>non-preventable</u> accident is an accident which occurred in spite of the fact that the driver(s) did everything reasonable to prevent it.</p> <p>The key word in both of these definitions is <u>reasonable</u>.</p> <p>The intent of Defensive Driving programs and in part the roadeo today is to make drivers aware of what is <u>reasonable</u> to expect of them as motor vehicle operators. Practicing good driving habits is not unreasonable to expect from every</p>	<p><i>Write two categories on blackboard or flipchart.</i></p> <p><i>Ask participants to explain the difference between the two.</i></p> <p><i>Give the definitions.</i></p>

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	<p>driver; the more knowledge and skill an operator possesses the likelihood of being involved in a preventable accident becomes less.</p> <p>It is important to remember that even though the driver of the other vehicle may not be practicing good driving habits (violations or other improper driving) you are still responsible for doing everything reasonable to prevent an accident from occurring.</p>	<p><i>The instructor may wish to discuss with the participants the following concept .</i></p> <p><i>"Lack of knowledge is no excuse for being involved in a preventable accident .</i></p>
	<p>Practicing Defensive Driving is one technique through which an operator can use to lessen the chances of being involved in a preventable accident due to human error.</p> <p><u>Defensive Driving is driving to prevent accidents in spite of incorrect actions by others or adverse weather conditions.</u></p> <p>The basic principle of defensive driving is the S.I.P.D.E. (pronounced sipde) system. S.I.P.D.E. stand for:</p>	<p><i>Ask participants to define Defensive Driving.</i></p>



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	<p>The next step in the S.I.P.D.E. system-<u>identification</u>-is a logical continuation of the first step. In the searching process you are scanning the driving environment for potential hazards, and then during the identification step you are isolating those events in the driving environment that are potential hazards.</p> <p>*NOTE -- Step one and two are <u>so</u> closely related that the Virginia Drivers Manual combines them under one heading - Identifying. That manual refers to I.P.D.E. rather than S.I.P.D.E.</p> <p>Once the potentially hazardous event or situation has been isolated in the driving environment the next step is for the operator to <u>predict how</u> the event may produce conflict.</p> <p>For example: If you are driving down an urban street and through your scanning and identification process observe two children playing with a ball on the sidewalk next to the roadway; you should conclude through the <u>prediction step</u> that in all likelihood the ball is going to roll out into the street in front of you and</p>	<p><i>Instruct participants to refer to the Drivers Manual.</i></p>

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	<p>the children will follow.</p> <p>The conflict in this example would be the children running into the path of your vehicle.</p> <p>The operator must now <u>decide</u> upon a course of action that minimizes the risk of conflict. The operator's driving decision depends upon the amount and quality of information and upon past driving experience. Thus, accurate identification and prediction must have been made in order to insure a proper driving decision.</p> <p>The final step in the S.I.P.D.E. process is to <u>execute</u> the course of action selected in the decision process. Execution involves the physical skills used in driving. To execute properly, you must learn to time the placement of your vehicle in the highway setting. Execution becomes easier as you become more familiar with your vehicle and know the relationship between your physical capabilities and the capabilities of the vehicle.</p>	

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	<p>The exercises you will be driving through later on today provides you an opportunity to test your physical capabilities and the capabilities of your vehicle under controlled circumstances. Even though most of you have been driving for quite a few years, you will find that the physical make-up and capabilities of the equipment (vans) you will be driving today are quite different from the family car .</p> <p>You are probably saying to yourself: "I drive the van everyday at work, I know what it can do". Some of you may know your capabilities in relationship to your special equipment. But for the majority of you, your driving habits and skills have been molded by your years of experience behind the wheel of the family car.</p> <p>Later in this classroom session we will discuss further the exercises and the skills they require.</p> <p>The following is a checklist which will mentally help you follow through the S.I.P.D.E. system.</p>	

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	<p style="text-align: center;"><u>S.I.P.D.E. Checklist</u></p> <ol style="list-style-type: none"> <li>1. Have I chosen a reference point 12 seconds ahead of my vehicle in the center of my path?</li> <li>2. Am I scanning and searching from that reference point for potential problems?</li> <li>3. Am I checking my mirrors for potential problems?</li> <li>4. Have I returned to another reference point 12 seconds ahead of my vehicle in the center of my path and continued my searching process?</li> <li>5. Have I found and isolated any potential problems or hazards in my path?</li> <li>6. Have I determined the likelihood of the potential problem becoming a real problem?</li> <li>7. Have I decided what action I will take if the situation becomes a real problem?</li> <li>8. Am I prepared to carry out the necessary action to avoid a collision?</li> </ol> <p style="text-align: center;">Practicing the S.I.P.D.E. system will greatly reduce the probability of being involved in an accident. However, you must bear in mind that situations do arise that can not be avoided, and thus we find</p>	<p style="text-align: center;"><i>-Option-</i></p> <p><i>Type checklist and give as handout.</i></p>

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	<p>ourselves involved in a non-preventable accident. Nevertheless, practicing the S.I.P.D.E. system and developing a healthy driving attitude may even in a non-preventable accident situation reduce the severity of that accident.</p> <p>Good driving habits and attitudes could make the difference between a serious personal injury accident and a minor property damage accident.</p> <p>Along with the S.I.P.D.E. system there are also 5 basic defensive driving attitudes that a good driver must possess. Equipped with these driving attitudes an operator is more able to put to use the S.I.P.D.E. system.</p> <p>The 5 basic Defensive Driving Attitudes are:</p> <ol style="list-style-type: none"> <li>1. Knowledge</li> <li>2. Alertness</li> <li>3. Foresight</li> <li>4. Judgement</li> <li>5. Skill</li> </ol> <p><u>Knowledge</u> alone is not an attitude.</p>	<p><i>Write on blackboard or flipchart.</i></p>

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	<p>However, if you know the traffic rules and regulations of your state; if you know the proper procedures for passing, yeilding the right-of-way, and other vehicle maneuvers then you can develop an attitude of confidence. This attitude of confidence in yourself asan operator helps you make correct decisions in the driving environment.</p> <p><u>Alertness</u> helps you to develop an attitude of awareness. Without this attitude of awareness it is impossible to get the "Big Picture" of what is going on a-round you.</p> <p>Along with alertness you must possess <u>foresight</u>. Foresight aids you in looking ahead and predicting what is likely to happen.</p> <p><u>Judgement</u>, simply put, means "horse sense". You must have the ability to know what to do, when to do it and to do it right everytime.</p> <p><u>Skill</u> goes hand-in-hand with knowledge in rounding out your attitude of confidence. Skill relates to having the ability to perform those driving maneuvers for which you</p>	

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	<p>know the proper procedure.</p> <p>If you practice to refine these attitudes in yourself, you will be well on your way to becoming a responsible driver.</p> <p>Even though today's activities are not intended as a substitute for a fully developed defensive driving course, there are some fundamental operating techniques and procedures that must be touched upon to round out our discussion of the human element in the transportation system, as well as to aid you in today's practical exercise.</p> <p>These fundamental operating techniques and procedures are:</p> <ul style="list-style-type: none"> <li>● Hand placement</li> <li>● Seat placement and visibility</li> <li>● Use of communication devices</li> <li>● Backing procedures</li> <li>● Following rule</li> </ul> <p>Many accidents can be prevented by the operator who has full control over the vehicle and who is able to execute the necessary maneuvers to avoid potentially dangerous situations.</p>	<p><i>Ask participants for questions about what has been taught thus far.</i></p>

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	<p>Proper <u>hand placement</u> is critical to the operator for maximum vehicle maneuverability.</p> <p>Hands should be placed as near to the <u>nine and three o'clock</u> position on the steering wheel as possible. This balanced hand position will facilitate a 180° turn of the steering wheel in the shortest possible time. Should it be necessary to turn more, the hand-over-hand method of steering should be used.</p> <p>The wheel should <u>never</u> be allowed to slip through the drivers hands, and at least one hand should firmly grasp the wheel <u>at all times</u>. In addition to restricting initial steering ability, an unbalanced hand position such as ten and two o'clock may cause the driver to pull the steering wheel to one side as the motion of the vehicle pushes the operator's body in one direction or another.</p> <p>As well as proper hand position the use of <u>seat belts and shoulder harness</u> increases vehicle maneuverability by reducing the amount of unnecessary operator body movement.</p>	<p><i>Demonstrate 9 &amp; 3 position and hand-over-hand</i></p>

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	<p><u>Seat adjustment</u> is also an important element in the operator's ability to control the vehicle. The driver must be comfortable in order to avoid fatigue and allow maximum freedom to maneuver the vehicle with ease. The seat should be positioned as far back as leg length will allow while still being able to operate the controls fast.</p> <p>There will be <u>no left foot braking</u>; the left foot should be securely stationed on the floor board for stabilization of the body. The thighs should be resting on the seat, and the knees should be slightly flexed.</p> <p>The test for proper position is to adjust the seat so that when the arm is fully extended and the back is against the seat, the wrist will touch the top of the steering wheel. Again, the knees should be slightly flexed and hands should be able to be positioned at nine and three o'clock on the wheel without feeling cramped. It is important to be able to steer quickly with arms extended and with elbows moving away from the body.</p>	<p><i>Emphasize no left foot braking.</i></p>

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<p><i>Handout</i></p>	<p>When the seat has been properly adjusted the mirrors should be adjusted for maximum visibility. This is especially critical for van operators due to the rear window configuration of most vans.</p> <p>Mirrors offer the only contact with the traffic situation behind the vehicle. Sitting back in the seat, the inside mirror should be adjusted so that it highlights the right rear of the vehicle (if possible) and visibility extends several hundred feet behind. Outside mirrors should be set so that visibility extends several hundred feet to the rear, using the side of the vehicle as a reference point.</p> <p>Some vehicles are equipped with convex-curved mirrors. These mirrors give a wider view of the highway behind, but they make following vehicles appear further back than they actually are. If you are using this type of mirror, you should learn to judge the actual distance between your vehicle and the vehicle behind you.</p> <p>Proper mirror adjustments can aid in minimizing "blind spots" to the left and right rear of your vehicle. Blind spots</p>	<p><i>Reproduce handout "view from van's mirrors" (Appendix D) and give to participants</i></p>

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	<p>are areas outside of the vehicle that are not visible through the mirrors. Side mirrors <u>do not</u> totally eliminate the "blind spots". You should <u>always</u> glance over your shoulder in the direction you wish to move to check for vehicles which do not appear in the mirrors.</p> <p>The proper use of the vehicle's <u>communication devices</u> can also aid greatly in reducing the likelihood of being involved in a preventable accident. The vehicles communication devices include: back-up lights, side lights, headlights, horn, emergency four-way flashers, and directional signals. These devices are important not only so you will <u>be seen</u> or <u>be able to see</u> the other vehicles, but also for you to <u>communicate your intentions</u>.</p> <p>Some points to remember when using your communication devices: (laws governing some of these may change with the State in which you are driving)</p> <ul style="list-style-type: none"> <li>● When making a turn if the speed limit is more than 35 MPH signal your intention at least 100 feet before you reach the turning point.</li> </ul>	<p><i>Emphasize the importance of looking over the shoulder.</i></p> <p><i>Emphasize the following points.</i></p>

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	<p>If your speed is less than 35 MPH signal at least 50 feet from the turning point.</p> <ul style="list-style-type: none"> <li>● If you must stop warn the driver following you (especially if the vehicle is close) by flashing your brake lights. Do this by pumping your brakes.</li> <li>● When changing lanes, passing or pulling from the curb follow the 3-blink rule. Signal your intentions by using your directional signal and allow the signal to blink at least 3 times before making the move.</li> <li>● You must use headlights from one-half hour after sunset to one-half hour before sunrise, and at other times when visibility has been reduced.</li> <li>● Headlights must be dimmed when an on-coming vehicle is within 500 feet of your vehicle and</li> </ul>	

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	<p>when you are following another vehicle within 200 feet.</p> <ul style="list-style-type: none"> <li>● Use the four-way flashers in an emergency situation. Examples include: pulling to edge of the road where there is no designated parking; when traffic is being slowed by such things as a road construction, accident, etc.; when your vehicle (due to an emergency) is travelling at a greatly reduced speed compared to other vehicles on the roadway.</li> <li>● The horn should be used as a warning device. Sound a sharp blast on your horn when there is immediate danger.</li> <li>● Since the operators of large vehicles such as trucks and vans have very limited rear visability <u>the horn should be sounded before any backing motion is begun.</u> This is</li> </ul>	<p><i>Tell participants that they will use this procedure in the practical exercise.</i></p>

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	<p>also a wise practice for passenger car operators.</p> <p>The <u>backing manuever</u> commonly results in a preventable accident. In some cases these accidents are serious, especially when a pedestrain is involved. The most common mistake drivers make when backing is failing to look both ways behind them. <u>Mirrors do not give a full view.</u> To back straight, use these procedures:</p> <ol style="list-style-type: none"> <li>1. Turn your head and look backward to make sure the way is clear. Van operators should also check side mirrors for rear clearance.</li> <li>2. Keep your foot pressed on the brake until you are ready to move.</li> <li>3. Shift to reverse</li> <li>4. Turn your body to the right, placing your left hand at the top of the steering wheel so that you have enough leverage to turn it.</li> <li>5. If possible, place your right arm on the seat back to support yourself.</li> </ol>	

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	<p>6. Look over your right shoulder.</p> <p>7. Sound horn.</p> <p>8. If clear release pressure on the brake pedal. The vehicle should move, if not, accelerate gently.</p> <p>9. Correct steering as necessary</p> <p>10. Glance forward periodically to see where the front of the vehicle is going, and check side clearance through the side mirrors. Look back over your shoulder.</p> <p>11. Brake to stop.</p> <p>The steps for backing to the right are the same as backing straight except Step 9 should be: Turn steering wheel to the right as necessary (hand-over-hand method). The steps for backing to the left are the same as backing to the right except that you turn your upper body to the left looking over your left shoulder, and turn steering wheel to the left.</p> <p>There are two high-hazard points on</p>	<p><i>Emphasize sounding the horn.</i></p>

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	<p>a vehicle when you back and turn.</p> <ol style="list-style-type: none"> <li>1. The rear side in the direction you are turning</li> <li>2. The front side opposite the direction you are turning</li> </ol> <p>Are there any questions?</p> <p>The last procedure to discuss under the human element is the two-second rule. The two-second rule is a simple rule to follow, and is used to determine following distance. Following too closely is not only illegal, but often results in serious preventable accidents.</p> <p>To determine if you are following too closely, watch the vehicle ahead of you in your lane. Wait until the rear of that vehicle passes a fixed object, such as a sign, a utility pole, or an overpass. Then begin counting with "one-thousand-one". The front of your vehicle should not reach that fixed object before you have said "one-thousand-two". If it does you are following too closely.</p> <p>The two second rule allows the operator of a vehicle of average size in good</p>	<p><i>Emphasize these two points.</i></p>

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	<p>weather conditions, time to change lanes fast if necessary. If weather conditions are poor you may need to increase from two seconds. For example: if there is packed snow on the road or if it is raining hard, a gap of 5 or 6 seconds may be needed. We will discuss stopping distance in more detail when we talk about the environment.</p>	
	<p>The next element of the Transportation System to be discussed further is the vehicle element.</p> <p>As was mentioned earlier the vehicle element of the transportation system probably contributes least to accident causation. But by developing some good habits concerning the vehicle, numbers of accidents caused by the vehicle can potentially be reduced to near zero. The habits I am referring to simply mean being aware of your vehicle.</p> <p>Awareness of your vehicle rests with your senses. You must use your senses of sight, smell, feeling (touch) and hearing. To do this systematically you should</p>	

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	<p>follow three daily inspection techniques.</p> <ul style="list-style-type: none"> <li>● Pre-ignition check</li> <li>● Post-ignition check</li> <li>● Road check</li> </ul> <p>The Pre-ignition inspection involves awareness of the following checkpoints:</p> <ul style="list-style-type: none"> <li>a. Body (look)</li> <li>b. Tires (look)</li> <li>c. Leaks (look and smell)</li> <li>d. Mirrors (look)</li> <li>e. Engine condition/Fluid levels (look)</li> </ul> <p>The Post-ignition inspection involves an awareness of the following checkpoints:</p> <ul style="list-style-type: none"> <li>a. Lights (look)</li> <li>b. Horn (listen)</li> <li>c. Windshield wipers (look)</li> <li>d. Heating and ventilation system (listen and smell)</li> </ul> <p>And the Road check involves an awareness of the following:</p>	<p><i>Write on blackboard or flip-chart.</i></p> <p><i>Discuss these checkpoints and how to use your senses.</i></p> <p><i>Discuss these checkpoints and how to use your senses.</i></p> <p><i>Discuss these checkpoints and how to use your senses.</i></p>

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	<ul style="list-style-type: none"> <li>a. Transmission (listen and feel)</li> <li>b. Steering (listen and feel)</li> <li>c. Suspension (listen and feel)</li> <li>d. Engine (listen and feel)</li> <li>e. Brakes (listen and feel)</li> </ul> <p>If you get into the habit of making these daily checks of your vehicle you will develop a reliable awareness of that vehicle. With this awareness you will be able to quickly identify a potential problem. <u>Your senses will tell you when something doesn't look, feel, sound or smell normal.</u> These items should be reported and if possible repaired before the vehicle is operated.</p>	
	<p>The third and final element of the transportation system is the environmental element. You may remember from our earlier discussion of the environmental element that it consists of all external conditions not contained in the human and vehicle elements. It includes such things as roadway design and conditions, weather and lighting conditions.</p>	

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	<p>Coping with adverse environmental conditions requires knowledge and skill, but most of all good common sense. The knowledge we possess about vehicular dynamics as well as skill level will vary from one individual to the other. Most of us don't possess the knowledge or skill of a professional race car driver. But if we have and practice good common sense we will know when to adjust our driving to compensate for our lack of knowledge and skill.</p> <p>However, practicing good common sense doesn't always "get us off the hook", especially when we experience a sudden change in environmental conditions. Therefore, we must continue to expand our knowledge of the driving environment, and our skill as operators.</p> <p>I would like to discuss four points that may improve our knowledge and skill while driving under adverse road conditions. The points to be discussed are:</p> <ul style="list-style-type: none"> <li>● Recovery from skid</li> <li>● Two-second rule</li> <li>● Speed vs. Condition/Stopping Distance</li> </ul>	<p><i>Write on blackboard or flip-chart.</i></p>

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	<p>● Attentiveness</p> <p>Let's first talk about <u>skid recovery</u>. Skids result when traction between the vehicle and roadway is lost. This loss of traction may be caused by roadway surface conditions, or driver action. There are three kinds of skids: a cornering skid (side slip), an acceleration skid and a deceleration skid. The two most difficult to recover from are the cornering skid and the deceleration skid.</p> <p>In a cornering skid the rear of the vehicle tends to go out of control. This occurs most frequently when the road surface is slippery due to rain, snow (or ice), and when a driver <u>steers abruptly</u> and/or <u>travels too fast</u> through a curve. A combination of these two situations increase the extent and therefore the seriousness of the skid.</p> <p>To straighten the vehicle from a cornering skid, turn the steering wheel in the direction the rear of the vehicle is skidding.</p> <p>For example: if the rear of the vehicle is moving to the left, turn the</p>	<p><i>Emphasize this steering technique.</i></p>

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	<p>steering wheel to the left.</p> <p>When traction returns, the vehicle will straighten out. Be careful not to over-correct. To avoid over-correcting, you must countersteer smoothly and quickly. Each time the vehicle changes direction, you must turn the wheel in the direction in which the vehicle is skidding. Countersteering should be continuous until you are out of the skid and you have fully gained control of the vehicle.</p> <p>There are two types of deceleration skids. In one the rear of the vehicle slips sideways as a result of releasing the accelerator pedal too quickly, especially on a slippery surface. <u>This type of deceleration skid is seen frequently on bridges and overpasses that freeze before the regular road surface.</u> If the operator is not aware of the icing condition of the bridge until the vehicle is travelling over it, the tendency is to slow down quickly by releasing the accelerator pedal. This will usually result in a side motion skid.</p> <p>To recover from this type of deceler-</p>	

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	<p>ation skid use the same procedure as described for recovering from a cornering skid.</p> <p>The second type of deceleration skid is one that results from wheel lock. This condition can occur on dry surfaces as well as slippery surfaces. A skid caused by wheel lock is the most difficult skid to correct because steering control is lost. The vehicle will continue in the direction of the skid without responding to steering. The best way to handle this skid is to release the brake pedal and use steering as in the cornering skid. Pumping the brakes also helps. Probably the most effective means of controlling this skid is a combination steering and brake-pumping action. Are there questions about skid control?</p> <p>The next point to remember when coping with adverse weather conditions is the two-second rule. We have already discussed how this can be used to determine the proper following distance on normal pavement. However, <u>it is important to remember that when the pavement becomes more slippery as with rain, snow or ice the time it takes a vehicle to stop becomes much greater.</u></p>	

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	<p>So the 2 second following distance (time) may need to be increased to as much as 5 or 6 seconds.</p> <p>The slipperiness of a road surface is determined by the amount of friction that exists between the tires and the road surface. This slipperiness is designated by a number and is called "drag factor". As the number or drag factor gets lower the more slippery the surface.</p> <p>For example: A dry travelled asphalt surface will have a drag factor of about .75, but if that same surface gets wet the drag factor may go to as low as .45, thus it becomes more slippery.</p> <p>Different surface materials will have different levels of slipperiness or drag factor. Remember, dry travelled asphalt has a drag factor of about .75; compare this to a dry, loose gravel surface which has a drag factor of .45 or to loose snow which has a drag factor of .15.</p> <p>A driver using good common sense will adjust his speed according to road conditions and weather conditions. At 55 MPH</p>	

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	<p>it takes a greater distance to stop on a surface with a drag factor of .45 than on a surface with a drag factor of .75. And as speed increases so does stopping distance.</p> <p>We have been talking about how braking distance varies with road conditions, weather conditions and speed. But if you are interested in determining total stopping distance, you must include another factor - reaction time. For most people reaction time is about 3/4 of a second. That is, it takes most people 3/4 of a second after they have decided to stop to actually raise their foot and place it on the brake pedal and begin to apply the brakes. This sounds like a very short time. However, at 20 MPH by the time you begin to apply the brakes you have already travelled 22 feet and at 55 MPH by the time you begin to apply the brakes you have travelled 60 feet.</p> <p>Lets see how this effects total stopping distance. First we will pick a dry travelled asphalt surface which has a drag factor of .75 and figure a braking distance at 55 MPH. The braking distance</p>	

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	<p>on dry travelled asphalt at 55 MPH = 134 feet.</p> <p><b>BRAKING DISTANCES AT A DRAG FACTOR OF .75</b></p> <p>20 MPH = 18 feet  30 MPH = 39 feet  40 MPH = 70 feet  50 MPH = 110 feet  <u>55 MPH = 134 feet</u></p> <p><b>REACTION DISTANCE (3/4 SECONDS)</b></p> <p>20 MPH = 22 feet  30 MPH = 33 feet  40 MPH = 44 feet  50 MPH = 55 feet  <u>55 MPH = 60 feet</u></p> <p>We then add reaction distance to braking distance to get total stopping distance. Reaction distance at 55 MPH = 60 feet.</p> <p>Total stopping distance of a vehicle on dry, travelled asphalt at 55 MPH is 194 feet. <u>Braking Distance (134 feet) + Reaction Distance (60 feet) = Stopping Distance (194 feet)</u></p>	<p><i>Write on black-board or flip-chart.</i></p> <p><i>Write on black-board or flip-chart.</i></p> <p><i>Write on black-board or flip-chart and discuss the implications of this 194 ft. stopping distance.</i></p>

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	<p>As braking distance varies with different surfaces and weather conditions so does reaction time vary with different people and situations. As I mentioned, 3/4 seconds is the average reaction time. However; such factors as the aging process, illness, medication, and alcohol tend to increase reaction time and consequently reaction distance. These factors must be taken into consideration along with road conditions and weather in determining stopping distance and thus driving speed.</p> <p>The last point that needs emphasis when discussing the environment is driver attentiveness. Driver inattention is a human factor that results in many accidents even when environmental conditions are good. If adverse road and weather conditions are added to the operators driving environment along with driver inattention the likelihood of being involved in a crash becomes much greater.</p> <p><u>Driving is not a part-time job.</u> The job we have that requires us to drive may be a source of part-time income, but as soon as you sit yourself behind the wheel</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>of that vehicle you assume a full-time responsibility and a full-time job that requires your fullest and utmost attention.</p>	
<p><i>Handout</i></p>	<p>This concludes our discussion of defensive driving techniques and concepts. Some of what we discussed will be included on the written test so if you have any questions or would like me to repeat any of the information, let me know.</p> <p>Now let's talk about today's driving competition.</p> <p><u>CONTEST</u></p> <p>Competition will be divided into two phases:</p> <ol style="list-style-type: none"> <li>1. A written examination, 30 minutes in length, will count a maximum of 100 points. Questions will be fill-in-the-blank, multiple choice and true-false. The questions will be taken from today's classroom session, the Division of Motor Vehicles Driver's Manual, and the Virginia Commonwealth University Transit Operator Training Manual.</li> </ol>	<p><i>Ask participants if there are any questions about what has been discussed.</i></p> <p><i>Reproduce and give to each participant a paratransit roadeo handout. (See Appendix D) Ask them to follow along as you read this section.</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
<i>Handout</i>	<p><u>All contestants will be required to take the written examination.</u></p> <p>2. Each contestant will be required to make two runs through the course for scores. The course is composed of:</p> <p>a) double lane change, b) parallel parking, c) offset alley, d) serpentine, and e) reaction course.</p> <p><u>COURSE DESCRIPTION</u></p> <p><u>Double Lane Change</u></p> <p>The object of this exercise is to determine the operator's ability to change lanes to avoid unexpected hazards. The techniques employed in this exercise are more rapid and safe than an all-wheel skid due to excessive braking.</p> <p>In this exercise the contestants begin at a pre-determined start location. When given a signal by the judge the contestant accelerates through one set of cones, changes lanes and maneuvers through a second set of cones, and then changes lanes again to drive through a third set of cones. The contestant then brings</p>	<p><i>Reproduce and give to each participant a course layout sheet for each exercise (See Appendix D).</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>the vehicle to a stop at a designated stop location.</p> <p style="text-align: center;"><u>Parallel Parking</u></p> <p>The object of this exercise is to determine the operator's ability to park parallel to a simulated curb as in making a curb-side street delivery, or in moving the unit to the side of the road.</p> <p>Each contestant begins at a pre-determined start location. When given a signal by the judge the contestant moves the vehicle forward, positions the vehicle, and parks the vehicle in the first designated parking space. As soon as the vehicle is parked the contestant continues forward in the same manner to the second parking space which is on the opposite side of the driving lane. As soon as the second parking maneuver is complete the vehicle is moved to a designated stop location.</p> <p style="text-align: center;"><u>Offset Alley</u></p> <p>This exercise requires the ability to maneuver the vehicle, judge distances</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>for all points on the vehicle, and to control speed while driving in a continuous motion through a confined space. The exercise simulates the avoidance of parked vehicles and maneuvering through narrow streets. The same applies to the reverse motion.</p> <p>The contestant begins at a pre-determined start location. When given a signal by the judge the contestant accelerates the vehicle forward through a continuous set of cones which are positioned to form a line with 3 straight segments and 2 turns. When the vehicle has been maneuvered through the exercise in the forward motion it should be brought to a stop at the designated stop location. <u>The contestant should then watch for the judge to signal the start of the reverse motion run through the exercise.</u> When the vehicle has been maneuvered through the exercise in the reverse motion it should be brought to a stop at the original pre-determined start location.</p> <p style="text-align: center;"><u>Serpentine</u></p> <p>This exercise requires the ability to</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>maneuver a vehicle relatively quickly, in and out of tight places in a forward and reverse motion. The exercise is designed to simulate conditions which might be encountered when disabled or wrecked vehicles partially block a highway, negotiating detours, moving in heavy traffic.</p> <p>Each contestant begins at a pre-determined start location. When given a signal by the judge the contestant maneuvers the vehicle in a forward motion around each of four cones (alternating sides as each cone is reached). When the vehicle has been maneuvered through the exercise in a forward motion it should be brought to a stop at the designated stop location. <u>The contestant should then watch for the judge to signal the start of the reverse motion run through the exercise.</u> When the vehicle has been maneuvered through the exercise in the reverse motion it should be brought to a stop at the original pre-determined start location.</p> <p style="text-align: center;"><u>Reaction Course</u></p> <p>This exercise requires the contest-</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>ant to think and react quickly. It assists the operator in becoming familiar with personal limitations as well as capabilities.</p> <p>The contestant begins at a pre-determined start location. When given a signal by the judge the contestant accelerates the vehicle through the first set of cones. As the vehicle approaches the end of the first set of cones the contestant will be given a command by the judge to either go straight, left, or right. The contestant must carry out the command by driving the vehicle through the appropriate second set of cones. When the vehicle has been maneuvered through the exercise it should be stopped at the designated stop location.</p> <p><u>Scoring</u></p> <p>1. The written examination will count for a maximum of 100 points. Each of the two runs through the course offers a maximum of 300 points. Scores of the two runs will be totaled and divided by two so that contestants will come up with a maximum potential of 300 points on the actual driving</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
<p><i>Handout</i></p>	<p>phase of the competition. Example: A contestant's score card might indicate a total test score of 75 for the written examination. He or she might score a 270 on the first exercise run and a 230 on the second exercise run. This would then give the contestant a total of 500 points on the driving portion (<math>270 + 230 = 500</math>). Dividing 500 by two would then give the contestant a final score of 250 on the driving portion of the roadeo. The exercise score of 250 would then be added to the examination score of 75 to give the contestant a final roadeo score of 325 (<math>250 + 75 = 325</math>).</p> <p>The exercise performance will be evaluated based on the following criteria:</p> <p><u>Double Lane Change</u></p> <ul style="list-style-type: none"> <li>● Number of cones struck</li> <li>● Time through the exercise</li> </ul> <p><u>Parallel Parking</u></p> <ul style="list-style-type: none"> <li>● Number of cones struck</li> <li>● Number of gear changes to park</li> <li>● Distance from curb</li> <li>● Horn sounded</li> </ul>	<p><i>-Option-</i>  <i>Reproduce and give to each participant evaluation forms. (See Appendix C)</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p><u>Offset Alley</u></p> <ul style="list-style-type: none"> <li>● Number of cones struck (forward and reverse)</li> <li>● Time through course (forward and reverse)</li> <li>● Horn sounded</li> </ul> <p><u>Serpentine</u></p> <ul style="list-style-type: none"> <li>● Number of cones struck (forward and reverse)</li> <li>● Time through course (forward and reverse)</li> <li>● Average distance from cones</li> <li>● Horn sounded</li> </ul> <p><u>Reaction Course</u></p> <ul style="list-style-type: none"> <li>● Number of cones struck</li> <li>● Time through course</li> <li>● Proper response</li> </ul> <p>Team scores will be determined by averaging the individual scores within the team.</p> <p>2. In the event of a tie the contestant having the highest score on the driving phase of the competition will be consider-</p>	

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>ed the winner. In the event there is still a tie the individual scoring the highest on <u>any one</u> run through the course will be considered the winner. In the event of a team tie the team with the highest scoring contestant in the driving phase will be considered the winning team. In the event there is still a tie the team with the individual scoring the highest on <u>any one</u> run through the course will be considered the winning team.</p> <p><u>GENERAL</u></p> <p>1. The competition will involve teams made up of three to four individuals per team. The individuals making up each team will be determined by the rodeo organizers. Prior to the competition each team will be assigned to an exercise. Each team member will make two consecutive runs through their assigned exercise, that team, on cue, will progress to the next exercise. The lead off driver for each team will rotate with each exercise. This driver rotation will continue until the course has been completed. When each team member has made two consecutive runs through each of the five exercises the</p>	<p><i>Tell participants the make-up of each team.</i></p> <p><i>Assign team to exercises.</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>course has been completed.</p> <p>2. Recognition will be given to the top individual scorers and the top team.</p> <p><u>DISQUALIFICATION</u></p> <p>Any violation of the following rules may result in disqualification of the involved contestant:</p> <ul style="list-style-type: none"> <li>● No contestant may walk or drive the course prior to competition,</li> <li>● No one other than authorized individuals will be permitted on the course during the driving competition,</li> <li>● Each team member will remain in the team vehicle at all times during the competition,</li> <li>● Lead off drivers will rotate after each complete exercise</li> <li>● There will be no unsportsmanlike conduct detrimental to the best interests of the sponsoring organization,</li> <li>● Seat belts will be worn at all times during the competition,</li> <li>● Vehicles will be operated in a</li> </ul>	<p><i>If awards are to be given, tell the participants what awards will be presented for which place. (EX: trophy for 1st place and ribbons for 2nd and 3rd place.)</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>safe manner at all times. No driver action shall at any time endanger or otherwise threaten the safety of those individuals on or about the exercise site.</p>	
	<p>Does anyone have any questions concerning the practical exercises?</p> <p>Does anyone have any questions concerning the defensive driving section?</p> <p>If there are no more questions lets go on to the written exam.</p>	<p><i>Ask participants for questions concerning the practical exercise and/or the defensive driving section.</i></p>
	<p>The examination includes questions from today's classroom session, the Division of Motor Vehicles Driver's Manual, and the Transit Operator Training Program (Paratransit). The exam is made up of 25 questions. The questions include multiple choice, true-false and fill-in-the-blank.</p> <p>You have a total of 30 minutes to complete the exam. All you need is a pen or pencil, you cannot use any books or notes when completing the examination.</p>	

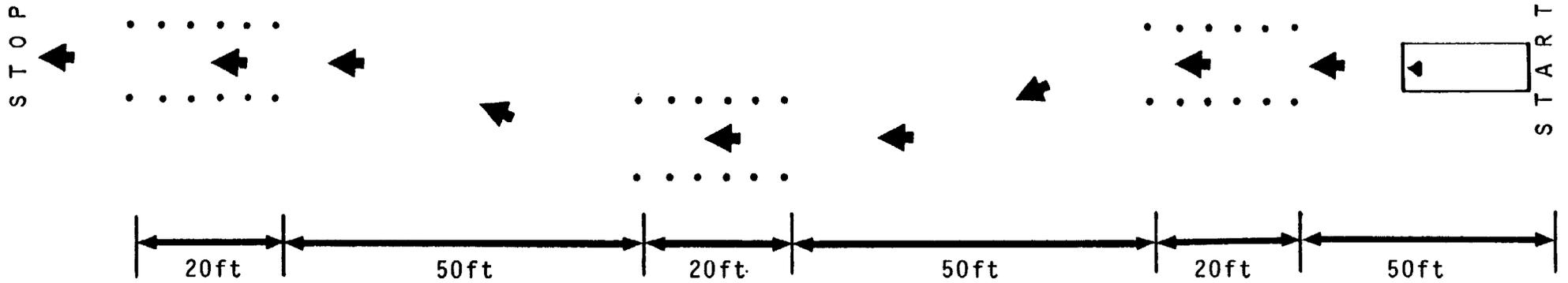
AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p>Leave the exam face down in front of you until I tell you to begin. As soon as I tell you to begin, turn the exam over, write your name at the top, and start answering the questions. You will have 30 minutes from that point. If you finish before 30 minutes you can bring your exam to me and leave the room (don't go far). At the end of the 30 minutes I will collect all remaining papers (finished or not).</p> <p>Now Begin</p> <p><i>Every 10 minutes tell the participants how much time is remaining. Then let them know when only 5 minutes remain.</i></p>	<p><i>Pass the exams out to the participants. Lay exam face down.</i></p>

AIDS	SUGGESTED CONTENT	INSTRUCTOR ACTIVITIES
	<p style="text-align: center;"><u>BIBLIOGRAPHY</u></p> <p>American Automobile Association. <u>Sportsmanlike Driving</u>, eighth ed. New York: Webster Division, McGraw Hill Book Co., 1980</p> <p>Bishop, Richard W. et al. <u>Driving: A Task-Analysis Approach</u>. Chicago: Rand McNally &amp; Co., 1975.</p> <p>National Safety Council. <u>Defensive Driving Manual</u>. Chicago: NSC, (current edition).</p> <p>Transportation Safety Training Center. <u>Transit Operator Training Program</u> (Package B). Richmond: Virginia Commonwealth University, 1980.</p> <p>Transportation Safety Training Center. <u>Virginia Emergency Vehicle Operator's Curriculum Guide</u>, rev. ed. Richmond: Virginia Commonwealth University, 1981.</p> <p>Virginia Division of Motor Vehicles. <u>Virginia Driver</u>. Richmond: Division of Motor Vehicles, (current edition).</p>	

APPENDIX A

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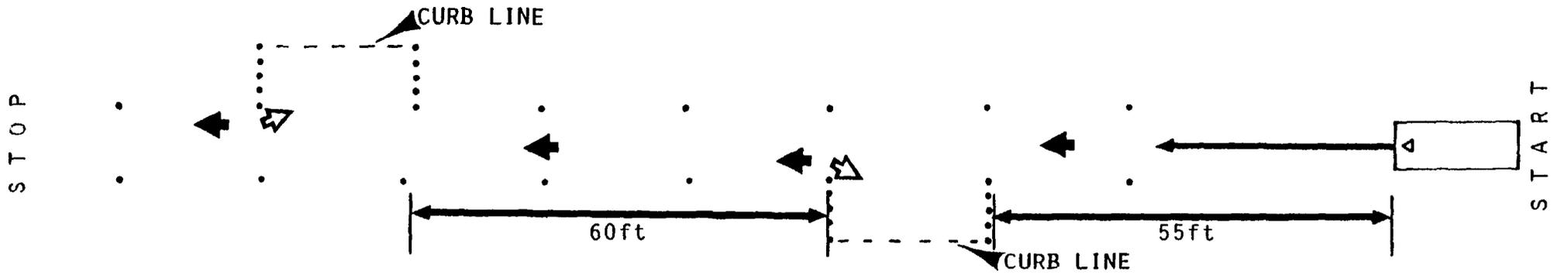
# DOUBLE LANE CHANGE



Lane width = Vehicle width plus 2ft

**TSTC/VCU**

# PARALLEL PARKING



← = FORWARD MOTION

⇐ = REVERSE MOTION

Lane Width = 12ft

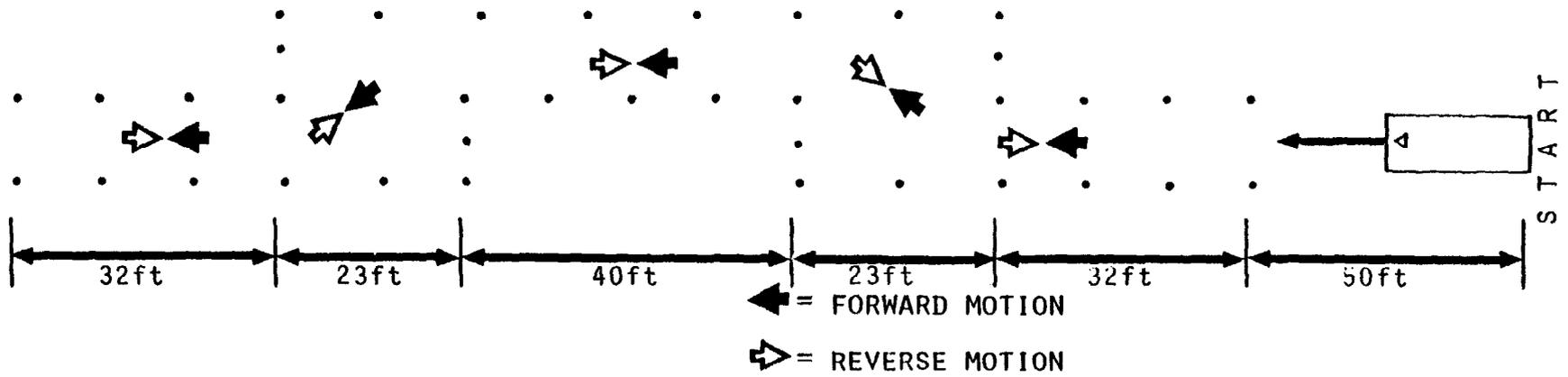
Parking Space:

Width = 8ft

Length = Vehicle Length plus 4ft

# OFFSET ALLEY

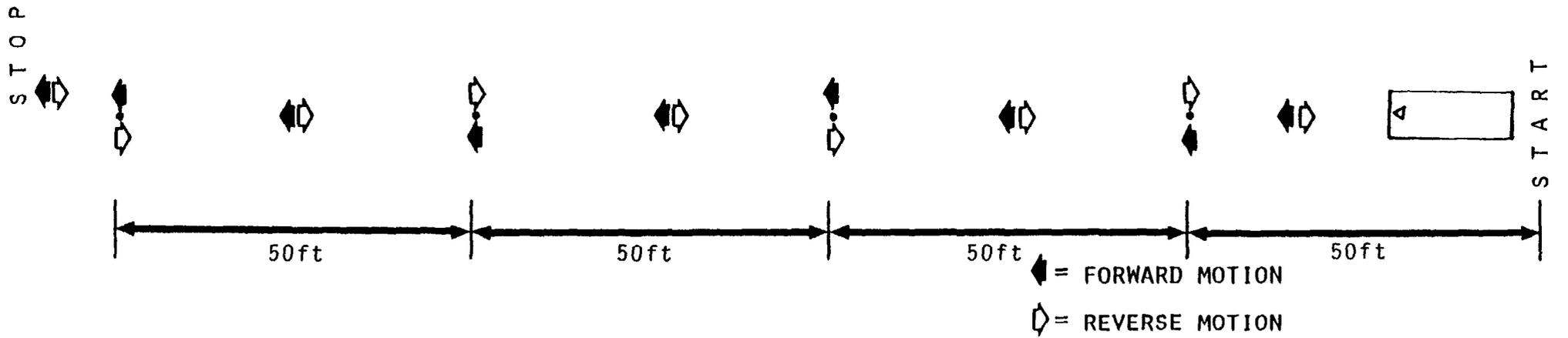
STOP



Lane Width = Vehicle Width plus 2ft

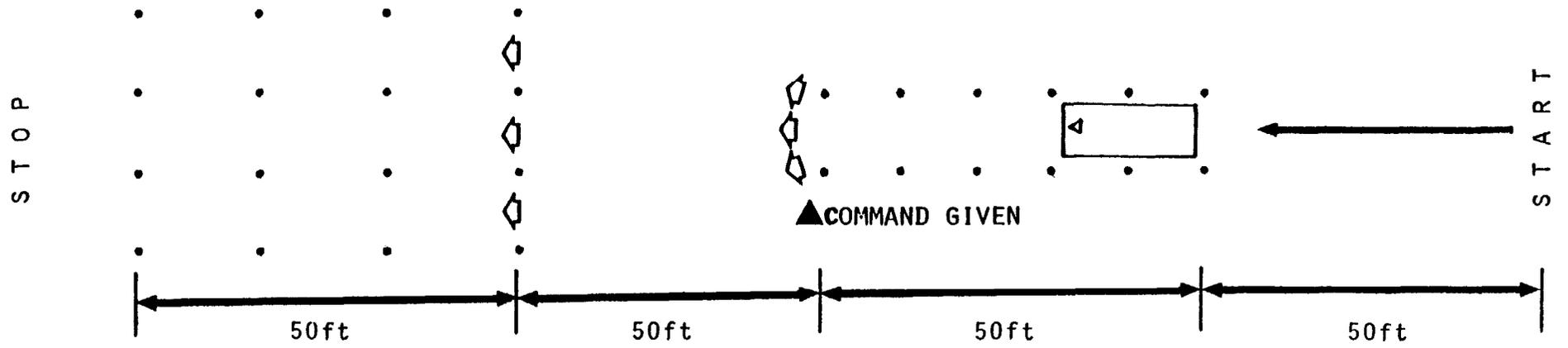
TSTC/VCU

# SERPENTINE

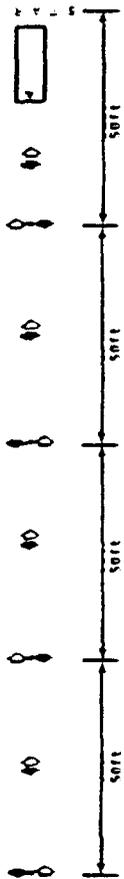
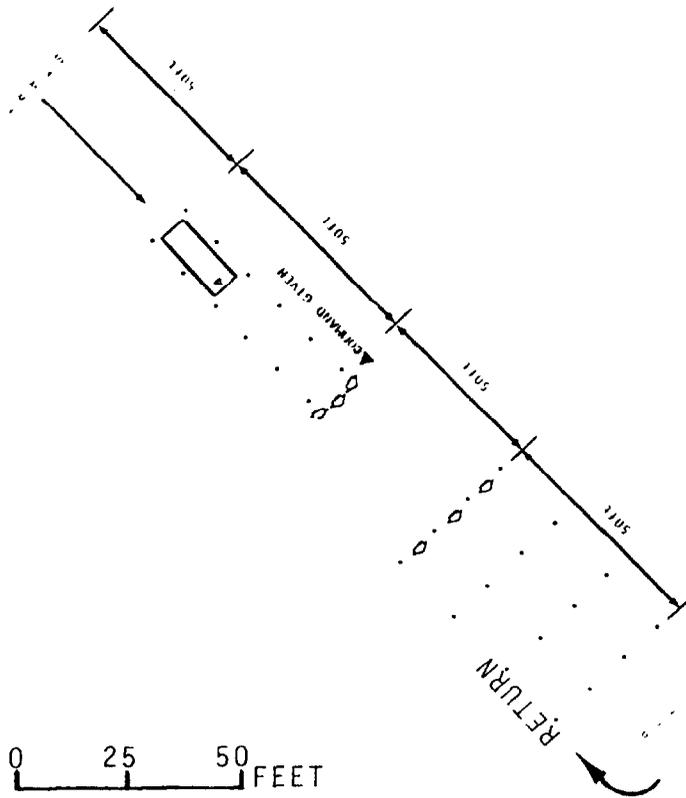
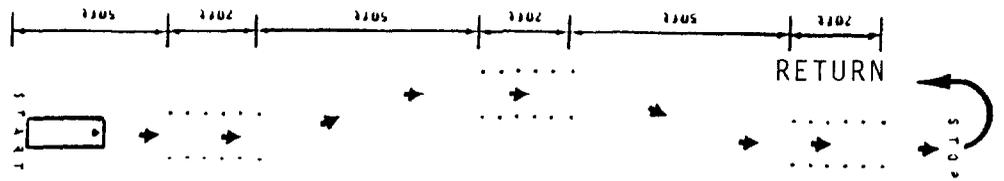
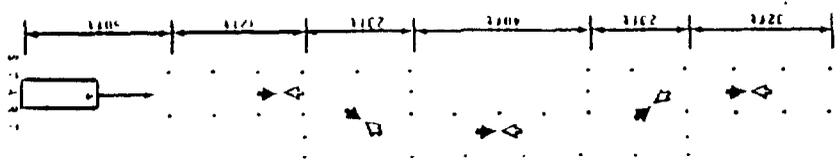
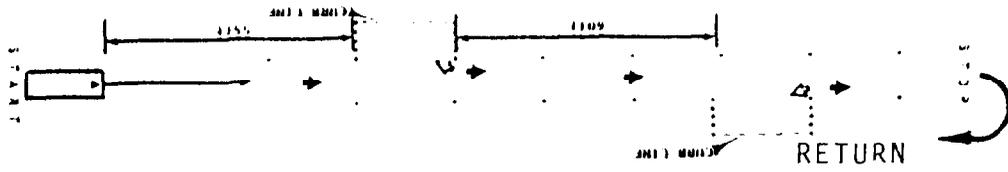


TSTC/VCU

# REACTION COURSE



T S T C / V C U



SCALE: 0 25 50 FEET



**APPENDIX B**

DOUBLE LANE CHANGE - EVALUATION FORM

OPERATOR'S NAME: \_\_\_\_\_ FINAL SCORE: RUN# 1 \_\_\_\_\_ RUN# 2 \_\_\_\_\_

A. CONE PENALTY:

- 0 CONES STRUCK = 60 POINTS
- 1-2 CONES STRUCK = 50 POINTS
- 3-4 CONES STRUCK = 40 POINTS
- 5-6 CONES STRUCK = 30 POINTS
- 7+ CONES STRUCK = 00 POINTS

RUN # 1

CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

RUN # 2

CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

B. TIME PENALTY:

- 0-7 SEC = -0 POINTS
- 8-12 SEC = -10 POINTS
- 13+ SEC = -20 POINTS

ACTUAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

ACTUAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

TOTAL DEDUCTIONS =

(B) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (B) \_\_\_\_\_ =

=====

TOTAL DEDUCTIONS =

(B) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (B) \_\_\_\_\_ =

=====

EVALUATOR'S COMMENTS: \_\_\_\_\_

EVALUATOR'S NAME: \_\_\_\_\_

PARALLEL PARKING - EVALUATION FORM

OPERATOR'S NAME: \_\_\_\_\_ FINAL SCORE: RUN#1 \_\_\_\_\_ RUN#2 \_\_\_\_\_

A. CONE PENALTY:

Space #1 and #2

- 0 CONES STRUCK = 60 POINTS
- 1 CONE STRUCK = 50 POINTS
- 2 CONES STRUCK = 40 POINTS
- 3 CONES STRUCK = 30 POINTS
- 4 CONES STRUCK = 20 POINTS
- 5 CONES STRUCK = 00 POINTS

B. GEAR CHANGE PENALTY:

Space #1 and #2

- 4 GEAR CHANGES = -0 POINTS
- 5-8 GEAR CHANGES = -10 POINTS
- 9+GEAR CHANGES = -40 POINTS

C. AVERAGE DISTANCE FROM CURB:

- 0-1 FT. = -0 POINTS
- 2-3 FT. = -10 POINTS
- 4+ FT. = -20 POINTS

D. HORN PENALTY:

HORN SOUNDED

- YES = -0 POINTS
- NO = -5 POINTS

RUN # 1

CONES STRUCK  $\frac{\quad}{\text{space\#1}} + \frac{\quad}{\text{space\#2}}$

TOTAL CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

GEAR CHANGES  $\frac{\quad}{\text{space\#1}} + \frac{\quad}{\text{space\#2}}$

TOTAL GEAR CHANGES \_\_\_\_\_

GEAR DEDUCTION(B) \_\_\_\_\_

AVERAGE DISTANCE FROM CURB \_\_\_\_\_

DISTANCE DEDUCTION(C) \_\_\_\_\_

HORN DEDUCTION(D) \_\_\_\_\_

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ +

(D) \_\_\_\_\_ = (E) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (E) \_\_\_\_\_ =

=====

RUN # 2

CONES STRUCK  $\frac{\quad}{\text{space\#1}} + \frac{\quad}{\text{space\#2}}$

TOTAL CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

GEAR CHANGES  $\frac{\quad}{\text{space\#1}} + \frac{\quad}{\text{space\#2}}$

TOTAL GEAR CHANGES \_\_\_\_\_

GEAR DEDUCTION(B) \_\_\_\_\_

AVERAGE DISTANCE FROM CURB \_\_\_\_\_

DISTANCE DEDUCTION(C) \_\_\_\_\_

HORN DEDUCTION(D) \_\_\_\_\_

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ +

(D) \_\_\_\_\_ = (E) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (E) \_\_\_\_\_ =

=====

EVALUATOR'S COMMENTS: \_\_\_\_\_

EVALUATOR'S NAME: \_\_\_\_\_

OFF-SET ALLEY - EVALUATION FORM

OPERATOR'S NAME: \_\_\_\_\_ FINAL SCORE: RUN#1 \_\_\_\_\_ RUN#2 \_\_\_\_\_

A. CONE PENALTY:

Forward and Reverse

- 0 CONES STRUCK = 60 POINTS
- 1-2 CONES STRUCK = 50 POINTS
- 3-4 CONES STRUCK = 40 POINTS
- 5-6 CONES STRUCK = 30 POINTS
- 7+ CONES STRUCK = 00 POINTS

RUN # 1

CONES STRUCK  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

ACTUAL TIME  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

HORN DEDUCTION(C) \_\_\_\_\_

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ =

(D) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (D) \_\_\_\_\_ =

=====

RUN # 2

CONES STRUCK  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

ACTUAL TIME  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

HORN DEDUCTION(C) \_\_\_\_\_

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ =

(D) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (D) \_\_\_\_\_ =

=====

B. TIME PENALTY:

- 00-25 SEC = -0 POINTS
- 26-30 SEC = -10 POINTS
- 31+ SEC = -20 POINTS

C. HORN PENALTY:

HORN SOUNDED

- YES = -0 POINTS
- NO = -5 POINTS

EVALUATOR'S COMMENTS: \_\_\_\_\_

EVALUATOR'S NAME: \_\_\_\_\_

SERPENTINE - EVALUATION FORM

OPERATOR'S NAME: \_\_\_\_\_ FINAL SCORE: RUN#1 \_\_\_\_\_ RUN#2 \_\_\_\_\_

A. CONE PENALTY:

Forward and Reverse

- 0 CONES STRUCK = 60 POINTS
- 1 CONE STRUCK = 50 POINTS
- 2 CONES STRUCK = 40 POINTS
- 3 CONES STRUCK = 30 POINTS
- 4 CONES STRUCK = 20 POINTS
- 5 CONES STRUCK = 00 POINTS

B. TIME PENALTY:

Forward and Reverse

- 00-30 SEC = -0 POINTS
- 31-45 SEC = -10 POINTS
- 46+ SEC = -20 POINTS

C. AVERAGE DISTANCE FROM CONES:

- 0-3 FT. = -0 POINTS
- 4-6 FT. = -10 POINTS
- 7+ FT. = -20 POINTS

D. HORN PENALTY:

HORN SOUNDED

- YES = -0 POINTS
- NO = -5 POINTS

RUN # 1

CONES STRUCK  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

ACTUAL TIME  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

AVERAGE DISTANCE FROM CONES \_\_\_\_\_

DISTANCE DEDUCTION(C) \_\_\_\_\_

HORN DEDUCTION(D) \_\_\_\_\_

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ +

(D) \_\_\_\_\_ = (E) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (E) \_\_\_\_\_ =

=====

RUN # 2

CONES STRUCK  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL CONES STRUCK \_\_\_\_\_

CONE SCORE(A) \_\_\_\_\_

ACTUAL TIME  $\frac{\quad}{\text{forward}} + \frac{\quad}{\text{reverse}}$

TOTAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

AVERAGE DISTANCE FROM CONES \_\_\_\_\_

DISTANCE DEDUCTION(C) \_\_\_\_\_

HORN DEDUCTION(D) \_\_\_\_\_

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ +

(D) \_\_\_\_\_ = (E) \_\_\_\_\_

EXERCISE SCORE

(A) \_\_\_\_\_ - (E) \_\_\_\_\_ =

=====

EVALUATOR'S COMMENTS: \_\_\_\_\_

EVALUATOR'S NAME: \_\_\_\_\_

REACTION COURSE - EVALUATION FORM

OPERATOR'S NAME: \_\_\_\_\_ FINAL SCORE: RUN#1 \_\_\_\_\_ RUN#2 \_\_\_\_\_

A. CONE PENALTY:

0 CONES STRUCK = 60 POINTS  
 1-2 CONES STRUCK = 50 POINTS  
 3-4 CONES STRUCK = 40 POINTS  
 5-6 CONES STRUCK = 30 POINTS  
 7+ CONES STRUCK = 00 POINTS

RUN # 1

CONES STRUCK \_\_\_\_\_  
 CONE SCORE(A) \_\_\_\_\_

RUN # 2

CONES STRUCK \_\_\_\_\_  
 CONE SCORE(A) \_\_\_\_\_

B. TIME PENALTY:

00-10 SEC = -0 POINTS  
 11-15 SEC = -10 POINTS  
 16+ SEC = -20 POINTS

ACTUAL TIME \_\_\_\_\_

ACTUAL TIME \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

TIME DEDUCTION(B) \_\_\_\_\_

C. RESPONSE:

CORRECT RESPONSE = -0 POINTS  
 INCORRECT RESPONSE = -15 POINTS

RESPONSE  
 DEDUCTION(C) \_\_\_\_\_

RESPONSE  
 DEDUCTION(C) \_\_\_\_\_

TOTAL DEDUCTIONS

TOTAL DEDUCTIONS

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ =

(B) \_\_\_\_\_ + (C) \_\_\_\_\_ =

(D) \_\_\_\_\_

(D) \_\_\_\_\_

EXERCISE SCORE

EXERCISE SCORE

(A) \_\_\_\_\_ - (D) \_\_\_\_\_ =

(A) \_\_\_\_\_ - (D) \_\_\_\_\_ =

=====

=====

EVALUATOR'S COMMENTS: \_\_\_\_\_

EVALUATOR'S NAME: \_\_\_\_\_

PARATRANSIT  
ROADEO  
WRITTEN EXAMINATION

OPERATOR'S NAME: \_\_\_\_\_

1. A \_\_\_\_\_ accident is one in which you failed to do everything you reasonably could have done to prevent it. (fill-in)
2. The pre-crash time phase of an accident could begin many hours before the crash actually occurs. TRUE or FALSE (circle one)
3. The three elements of the motor vehicle transportation system are: a. human, b. vehicle and c. \_\_\_\_\_. (fill-in)
4. Which element of the transportation system contributes most to accident causation? \_\_\_\_\_ (fill-in)
5. The basic principle of defensive driving is the S.I.P.D.E. system. S.I.P.D.E. stands for: Search, Identify, P \_\_\_\_\_, Decide, Execute. (fill-in)
6. Which of the following S.I.P.D.E. steps involve isolating situations in the driving environment that are potential hazards? (circle one)  
A. Search B. Identify C. Decide D. Execute
7. Which of the following basic defensive driving attitudes refer to an operator's ability to: "Know what to do, when to do it and to do it right everytime"? (circle one)  
A. Knowledge B. Alertness C. Foresight D. Judgement E. Skill

8. To achieve maximum vehicle maneuverability the hands should be placed as near to the ten (10) and two (2) o'clock position on the steering wheel as possible. TRUE or FALSE (circle one)
9. Areas outside the vehicle that are not visible to the driver through the mirrors are called \_\_\_\_\_. (fill-in)
10. Headlights must be dimmed when an on-coming vehicle is within 500 feet of your vehicle. TRUE or FALSE (circle one)
11. Since the operators of large vehicles such as trucks and vans have very limited rear visibility, what must be done before any backing motion is begun? \_\_\_\_\_  
\_\_\_\_\_ (fill-in)
12. The basic driving rule practiced to avoid rear-end collisions is called: \_\_\_\_\_. (fill-in)
13. Vehicle inspection is a positive way to minimize accidents that result from vehicle failure. The road check technique involves identifying potential problems associated with five (5) vehicle components. Four of these are: transmission, steering, engine and suspension. What is the fifth component? \_\_\_\_\_  
\_\_\_\_\_ (fill-in)
14. If your vehicle begins to skid, take your foot off the gas pedal, do not brake and steer \_\_\_\_\_. (fill-in)
15. Wet pavement influences braking distance in what way? (circle one)  
A. Increases B. Decreases C. No Influence

16. The ageing process influences reaction time in what way?  
(circle one) A. Increases B. Decreases C. No Influence
17. In a collision, you are more likely to be seriously injured or thrown from your vehicle if you are not \_\_\_\_\_  
\_\_\_\_\_. (fill-in)
18. When parking beside a curb, your vehicle should be no more than \_\_\_\_\_ away. (fill-in)
19. At an intersection without signs or traffic lights the following applies: (circle one)  
A. The driver on the left must yield to the driver on the right.  
B. The driver on the right must yield to the driver on the left.
20. When parking on hills, set the parking brake and turn \_\_\_\_\_  
to keep the vehicle from rolling into the street. (fill-in)
21. According to the definition of motor vehicle accident, all crashes involving a motor vehicle are accidents? TRUE or FALSE(circle one)
22. An accident that results from the operator's view being limited by an over-grown bush near the roadway at an intersection involves which element of the transportation system? \_\_\_\_\_(fill-in)
23. Since there is nothing you can do to prevent being involved in an accident where the other driver violates the law (such as running a red light), then this type of accident is a non-preventable accident. TRUE or FALSE (circle one)

24. There are five (5) steps of "expert seeing". Four (4) of these are: aim high in steering, get the big picture, keep your eyes moving and leave yourself an out. What is the fifth step?

\_\_\_\_\_ (fill-in)

25. When making a turn, if the speed limit is more than 35 m.p.h. signal your intentions at least \_\_\_\_\_ feet before you reach the turning point. (fill-in)

PARATRANSIT  
ROADEO

WRITTEN EXAMINATION  
\*\*\*\*\*ANSWER KEY\*\*\*\*\*

<u>QUESTION NUMBER</u>	<u>CORRECT ANSWER</u>	<u>SOURCE</u>
1.-----	PREVENTABLE-----	CLASSROOM
2.-----	TRUE-----	CLASSROOM
3.-----	ENVIRONMENT-----	CLASSROOM
4.-----	HUMAN-----	CLASSROOM
5.-----	PREDICT-----	CLASSROOM AND DRIV. MANUAL
6.-----	B. IDENTIFY-----	CLASSROOM AND DRIV. MANUAL
7.-----	D. JUDGEMENT-----	CLASSROOM
8.-----	FALSE-----	CLASSROOM
9.-----	BLIND SPOT-----	CLASSROOM AND DRIV. MANUAL
10.-----	TRUE-----	CLASSROOM AND DRIV. MANUAL
11.-----	SOUND HORN-----	CLASSROOM
12.-----	2-SECOND RULE-----	CLASSROOM
13.-----	BRAKES-----	CLASSROOM
14.-----	IN THE DIRECTION OF THE SKID-----	CLASSROOM AND DRIV. MANUAL
15.-----	A. INCREASE-----	CLASSROOM AND DRIV. MANUAL
16.-----	A. INCREASE-----	CLASSROOM
17.-----	WEARING A SEAT BELT-----	DRIVER'S MANUAL
18.-----	ONE FOOT-----	DRIVER'S MANUAL
19.-----	A. LEFT YIELDS TO RIGHT-----	DRIVER'S MANUAL
20.-----	WHEELS-----	DRIVER'S MANUAL
21.-----	FALSE-----	CLASSROOM
22.-----	ENVIRONMENT-----	CLASSROOM
23.-----	FALSE-----	CLASSROOM
24.-----	MAKE SURE THEY SEE YOU-----	CLASSROOM
25.-----	100-----	CLASSROOM AND DRIV. MANUAL

APPENDIX C

PARATRANSIT  
ROADEO

OPERATOR'S SUMMARY EVALUATION

OPERATOR'S NAME: \_\_\_\_\_

I. EXERCISE EVALUATION:	RUN # 1 SCORES	RUN # 2 SCORES
A. DOUBLE LANE CHANGE	= _____	_____
B. PARALLEL PARKING	= _____	_____
C. OFF-SET ALLEY	= _____	_____
D. SERPENTINE	= _____	_____
E. REACTION COURSE	= _____	_____
TOTAL SCORES (A+B+C+D+E)	= _____	_____
	(RUN#1 TOTAL)	(RUN#2 TOTAL)

COMBINED SCORE:

$$\text{RUN \# 1 TOTAL } \underline{\hspace{2cm}} + \text{RUN \# 2 TOTAL } \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ (COMBINED SCORE)}$$

FINAL EXERCISE SCORE:

$$\text{COMBINED SCORE } \underline{\hspace{2cm}} \div 2 = \underline{\hspace{2cm}} \text{ (FINAL EXERCISE SCORE)}$$

II. WRITTEN EXAMINATION SCORE:

$$\text{NUMBER OF QUESTIONS CORRECT } \underline{\hspace{2cm}} \times 4 = \underline{\hspace{2cm}} \text{ (EXAMINATION SCORE)}$$

III. FINAL ROADEO SCORE:

$$\text{FINAL EXERCISE SCORE } \underline{\hspace{2cm}} + \text{EXAMINATION SCORE } \underline{\hspace{2cm}} =$$

FINAL ROADEO SCORE \*\*\*\*\*  
\* \* \* \* \*  
\* \* \* \* \*  
\*\*\*\*\*

EVALUATOR'S NAME: \_\_\_\_\_

PARATRANSIT  
ROADEO

VEHICLE INSPECTION CHECKSHEET

DATE INSPECTED \_\_\_\_\_

VEHICLE OWNERSHIP OR RESPONSIBLE ORGANIZATION \_\_\_\_\_

VEHICLE # \_\_\_\_\_ VEHICLE TYPE \_\_\_\_\_ VEHICLE MILEAGE \_\_\_\_\_

\*\*\*\*\*

INSPECT AND CHECK BELOW IF ITEMS  
ARE "O.K."

DESCRIBE DEFECTS IF ITEMS ARE NOT  
"O.K."

1. UNDERHOOD

1. UNDERHOOD

oil level-----  
radiator level-----  
battery level-----  
belt wear-----  
wiper fluid-----

2. EXTERIOR

2. EXTERIOR

mirrors-----  
tires-----  
head lights-----  
tail lights-----  
brake lights-----  
body damage-----  
wipers-----  
leaks(water,oil,fuel)-----

3. ROAD/INTERIOR

3. ROAD/INTERIOR

brakes-----  
steering-----  
suspension-----  
transmission-----  
engine-----  
seat belts-----  
gauges:  
fuel-----  
alt.-----  
oil-----  
cleanliness(debris)---

INSPECTED BY: \_\_\_\_\_

\*\*\*\*\*

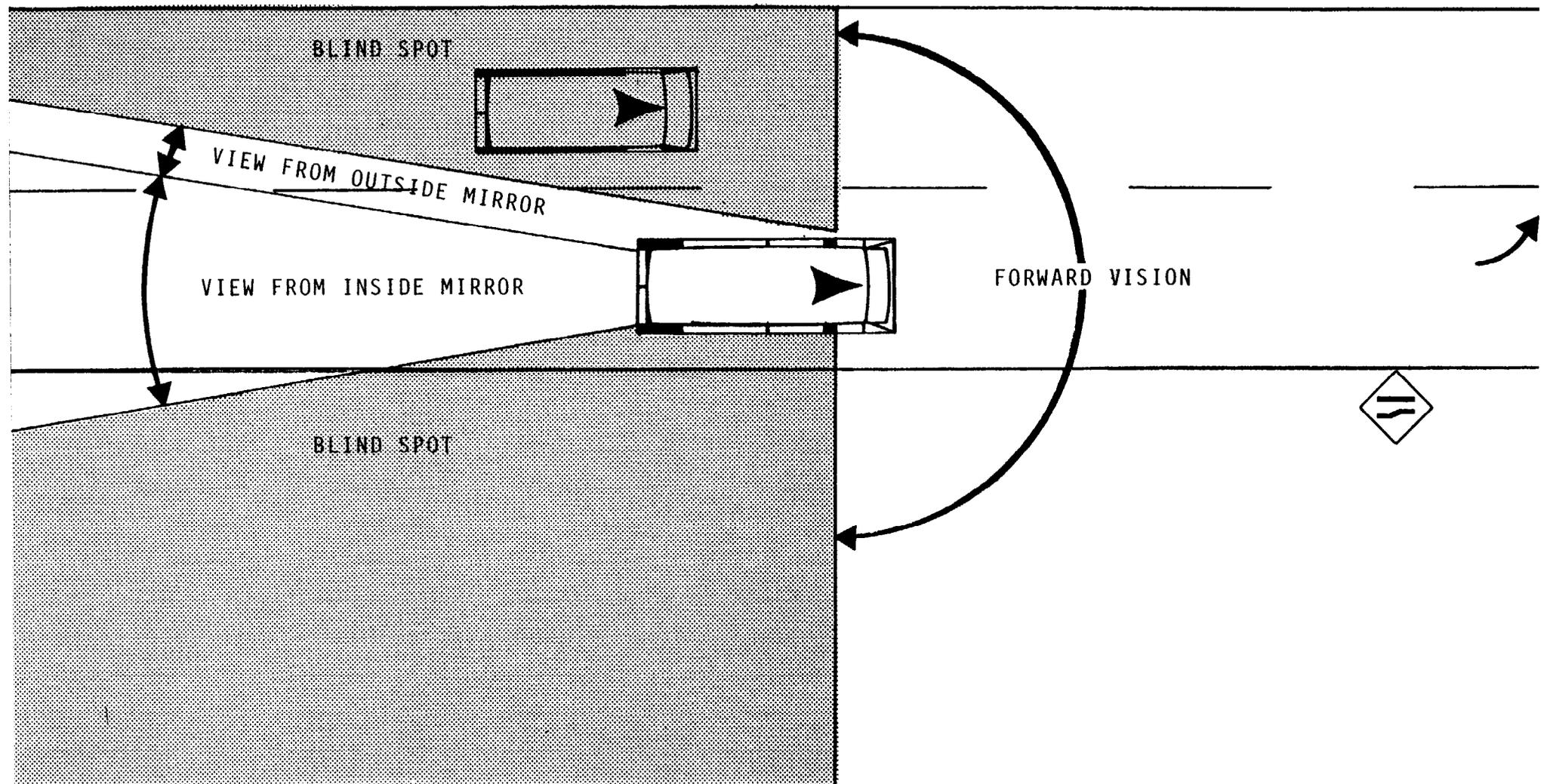
APPROVED \_\_\_\_\_ DISAPPROVED \_\_\_\_\_ FOR ROADEO PARTICIPATION.

OFFICIAL OF SPONSORING ORGANIZATION: \_\_\_\_\_

## APPENDIX D

NOTE: This section repeats several of the course diagrams included in Appendix A, but here they are presented without dimensions on the charts. Diagrams such as these can be presented to drivers as part of their entry packets, and the charts are included for that purpose if desired.

# VIEW FROM VAN'S MIRROR



## PARATRANSIT ROADEO

### CONTEST

Competition will be divided into two phases:

1. A written examination, 30 minutes in length, count a maximum of 100 points. Questions will be fill-in-the-blank, multiple choice and true-false. The questions will be taken from the classroom session, the Division of Motor Vehicles Driver's Manual, and the Virginia Commonwealth University Transit Operator Training Manual. All contestants will be required to take the written examination.
2. Each contestant will be required to make two runs through the course for scores. The course is composed of: a) double lane change; b) parallel parking, c) offset alley, d) serpentine, and d) reaction course.

### COURSE DESCRIPTION

#### Double Lane Change

The object of this exercise is to determine the operator's ability to change lanes to avoid unexpected hazards. The techniques employed in this exercise are more rapid and safe than an all-wheel skid due to excessive braking.

In this exercise the contestants begin at a pre-determined start location. When given a signal by the judge the contestant accelerates through one set of cones, changes lanes and manuevers through a second

set of cones, and then changes lanes again to drive through a third set of cones. The contestant then brings the vehicle to a stop at the designated stop location.

### Parallel Parking

The object of this exercise is to determine the operator's ability to park parallel to a simulated curb as in making a curb-side street delivery, or in moving the unit to the side of the road.

Each contestant begins at a pre-determined start location. When given a signal by the judge the contestant moves the vehicle forward, positions the vehicle, and parks the vehicle in the first designated parking space. As soon as the vehicle is parked the contestant continues forward in the same manner to the second parking space which is on the opposite side of the driving lane. As soon as the second parking maneuver is complete the vehicle is moved to a designated stop location.

### Offset Alley

This exercise requires the ability to maneuver the vehicle, judge distances for all points on the vehicle, and to control speed while driving in a continuous motion through a confined space. The exercise simulates the avoidance of parked vehicles and maneuvering through narrow streets. The same applies to the reverse motion.

The contestant begins at a pre-determined start location. When given the signal by the judge the contestant accelerates the vehicle forward through a continuous set of cones which are positioned to form a line with 3 straight segments and 2 turns. When the vehicle has been maneuvered through the exercise in the forward motion it should be brought to a stop at the designated stop location. The contestant should then watch for the judge to signal the start of the reverse motion run through the exercise. When the vehicle has been maneuvered through the exercise in the reverse motion it should be brought to a stop at the original pre-determined start location.

### Serpentine

This exercise requires the ability to maneuver a vehicle relatively quickly, in and out of tight places in a forward and reverse motion. The exercise is designed to simulate conditions which might be encountered when disabled or wrecked vehicles partially block a highway; negotiating detours; moving in heavy traffic.

Each contestant begins at a pre-determined start location. When given a signal by the judge the contestant maneuvers the vehicle in a forward motion around each of four cones (alternating sides as each cone is reached). When the vehicle has been maneuvered through the exercise in a forward motion it should be brought to a stop at the designated stop location. The contestant should then watch for the judge to signal the start of the reverse motion run through the exercise. When the vehicle has been maneuvered through the exercise in the reverse motion it should be brought to a stop at the original pre-determined start location.

### Reaction Course

This exercise requires the contestant to think and react quickly. It assists the operator in becoming familiar with personal limitations as well as capabilities.

The contestant begins at a pre-determined start location. When given a signal by the judge the contestant accelerates the vehicle through the first set of cones. As the vehicle approaches the end of the first set of cones the contestant will be given a command by the judge to either go straight, left or right. The contestant must carry out the command by driving the vehicle through the appropriate second set of cones. When the vehicle has been maneuvered through the exercise it should be stopped at the designated stop location.

## SCORING

1. The written examination will count for a maximum of 100 points. Each of the two runs through the course offers a maximum of 300 points. Scores of the two runs will be totaled and divided by two so that contestants will come up with a maximum potential of 300 points on the actual driving phase of the competition. Example: A contestant's score card might indicate a total test score of 75 for the written examination. He or she might score a 270 on the first exercise run and a 230 on the second exercise run. This would then give the contestant a total of 500 points on the driving portion ( $270 + 230 = 500$ ). Dividing 500 by two would then give the contestant a final score of 250 on the driving portion of the roadeo. The exercise score of 250 would then be added to the examination score of 75 to give the contestant a final roadeo score of 325 ( $250 + 75 = 325$ ).

The exercise performance will be evaluated based on the following criteria:

### Double Lane Change

- Number of cones struck
- Time through the exercise

### Parallel Parking

- Number of cones struck
- Number of gear changes to park
- Distance from curb
- Horn sounded

### Offset Alley

- Number of cones struck (forward and reverse)
- Time through course (forward and reverse)
- Horn sounded

## Serpentine

- Number of cones struck (forward and reverse)
- Time through course (forward and reverse)
- Average distance from cones
- Horn sounded

## Reaction Course

- Number of cones struck
- Time through course
- Proper response

Team scores will be determined by averaging the individual scores with the team.

2. In the event of a tie the contestant having the highest score on the driving phase of the competition will be considered the winner. In the event there is still a tie the individual scoring the highest on any one run through the course will be considered the winner. In the event of a team tie the team with the highest scoring contestant in the driving phase will be considered the winning team. In the event there is still a tie the team with the individual scoring the highest on any one run through the course will be considered the winning team.

## GENERAL

1. The competition will involve teams made up of three to four individuals per team. The individuals making up each team will be determined by the rodeo organizers. Prior to the competition each team will be assigned to an exercise. Each team member will make two consecutive runs through the exercise. After each member of the team has made two runs through their assigned exercise, that team, on cue, will progress to the next exercise. The lead off driver for each team will rotate with each exercise. This driver rotation will continue until the course has been completed. When each team member has made two consecutive runs through each of the five exercises the course has been completed

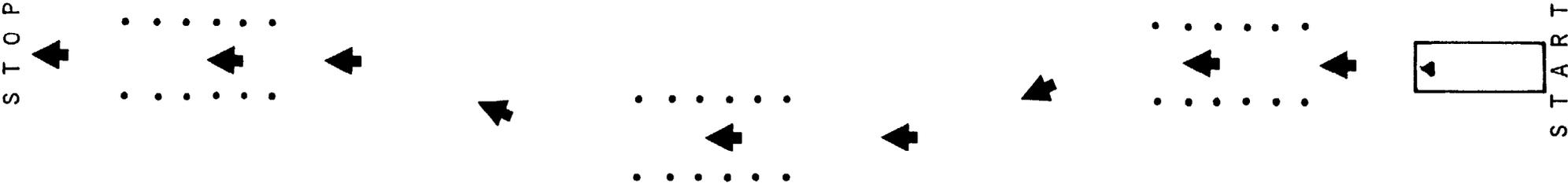
2. Recognition will be given to the top individual scorers and the top team.

### DISQUALIFICATION

Any violation of the following rules may result in disqualification of the involved contestant:

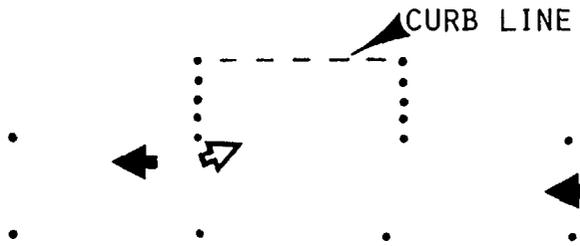
- No contestant may walk or drive the course prior to the competition.
- No one other than authorized individuals will be permitted on the course during the driving competition.
- Each team member will remain in the team vehicle at all times during the competition
- Lead off drivers will rotate after each complete exercise.
- There will be no unsportsmanlike conduct or conduct detrimental to the best interests of the sponsoring organization.
- Seat belts will be worn at all times during the competition.
- Vehicles will be operated in a safe manner at all times. No driver action shall at any time endanger or otherwise threaten the safety of those individuals on or about the exercise site.

DOUBLE LANE CHANGE

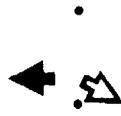


# PARALLEL PARKING

S T O P

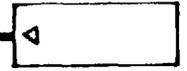


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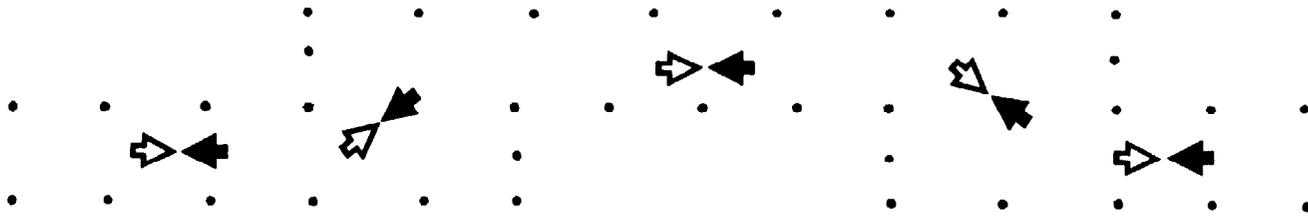
S T A R T

← = FORWARD MOTION

⇝ = REVERSE MOTION

# OFFSET ALLEY

STOP



START

← = FORWARD MOTION  
⇐ = REVERSE MOTION

TSTC/VCU

# SERPENTINE

S T O P



S T A R T

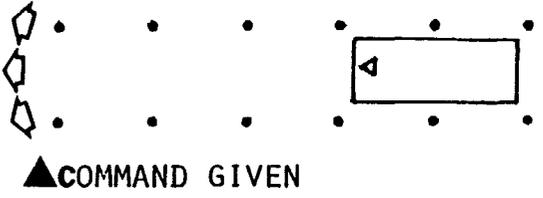
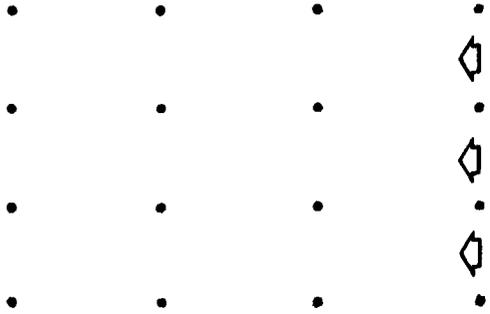
 = FORWARD MOTION

 = REVERSE MOTION

T S T C / V C U

REACTION COURSE

S T O P



S T A R T

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